

# PURCHASING

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# Would you lubricate the bearings?

**Then  
Lubricate  
WIRE ROPE!**

(IT HAS A THOUSAND  
"BEARINGS" PER FOOT)

A wire rope is a machine and should be so treated. Every component wire bears upon its adjacent wires and in operation they slide and rub against each other. Just as the crank-shaft bearings in your automobile need lubrication, so do these multiple bearing pressures in wire rope.

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# Industry Looks to the N.A.P.A. CONVENTION



MILESTONES such as the Silver Anniversary Convention of the National Association of Purchasing Agents, to be held in Cincinnati next month, inevitably suggest a comparison with earlier conditions and a review of the progress that has been made. Three points stand out as having particular significance.

1. A basic community of interest has been found and strengthened among purchasing men. Twenty-five years ago, the typical buyer had little interest or concern as to what the buyer in the plant

next door was doing, or how he was doing it. He regarded his own particular assignment as a special job, circumscribed by the individual requirements of his own company. Today the Purchasing Agents of the oil fields, the steel producing centers, the large and small manufacturing units, the textile industry, the chemical processors, the food producers, the utilities, and governmental units, meet on common ground, for they have learned that theirs is an essential function of management rather than an individual service job.

2. The Association program has grown in scope and in stature. At the early meetings, discussion was largely extemporary, and leaders groped for something, anything, that would provide a legitimate activity. Then came a phase in which the major emphasis was on forms and method. Today the program is clearly formed and emphasis has definitely progressed from technique to policy and education—the best possible evidence that purchasing has taken on professional and executive status.

3. Up to comparatively recent years, gatherings of purchasing men were regarded chiefly for their concentration of buying power—important and influential, but only in the light of a potential marketing opportunity. Today the whole program of the Association, and particularly the annual meeting, is recognized as a significant and determining force in the direction of national business policy. The deliberations at Cincinnati next month will be eagerly followed, and heeded, by the whole of American industry.

The Cincinnati convention will focus the spotlight upon this record of progress. Every conscientious and forward looking purchasing executive owes it to himself and to his company to be a part of this notable gathering.



# 5 Reasons for Using . . .

## *Ryerson Certified Steels*

**1 Every pound of steel in Ryerson stock is certified, prime quality.** No seconds are ever carried. Ryerson has built up complete stocks of these better steels in every classification—steels made to narrow, close-range specifications that assure better working qualities. For example: Ryerson Hot Rolled Bands will bend flat on themselves either with or against the grain; Continuous Mill Sheets in Ryerson stock are rolled from only the best part of the coil to make sure of flatness, accurate gauge and size; structural shapes and plates meet A.S.T.M. specifications not simply manufacturers standards; machine and carriage bolts have cut—not rolled—threads, etc.

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all steel requirements with this one dependable source of supply. Stocks include everything from structurals to stainless — from mechanical tubing to foundation bolts. Many special analyses and unusual sizes are included in the wide range of Certified Steel products in stock for Immediate Shipment.

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Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis.  
Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

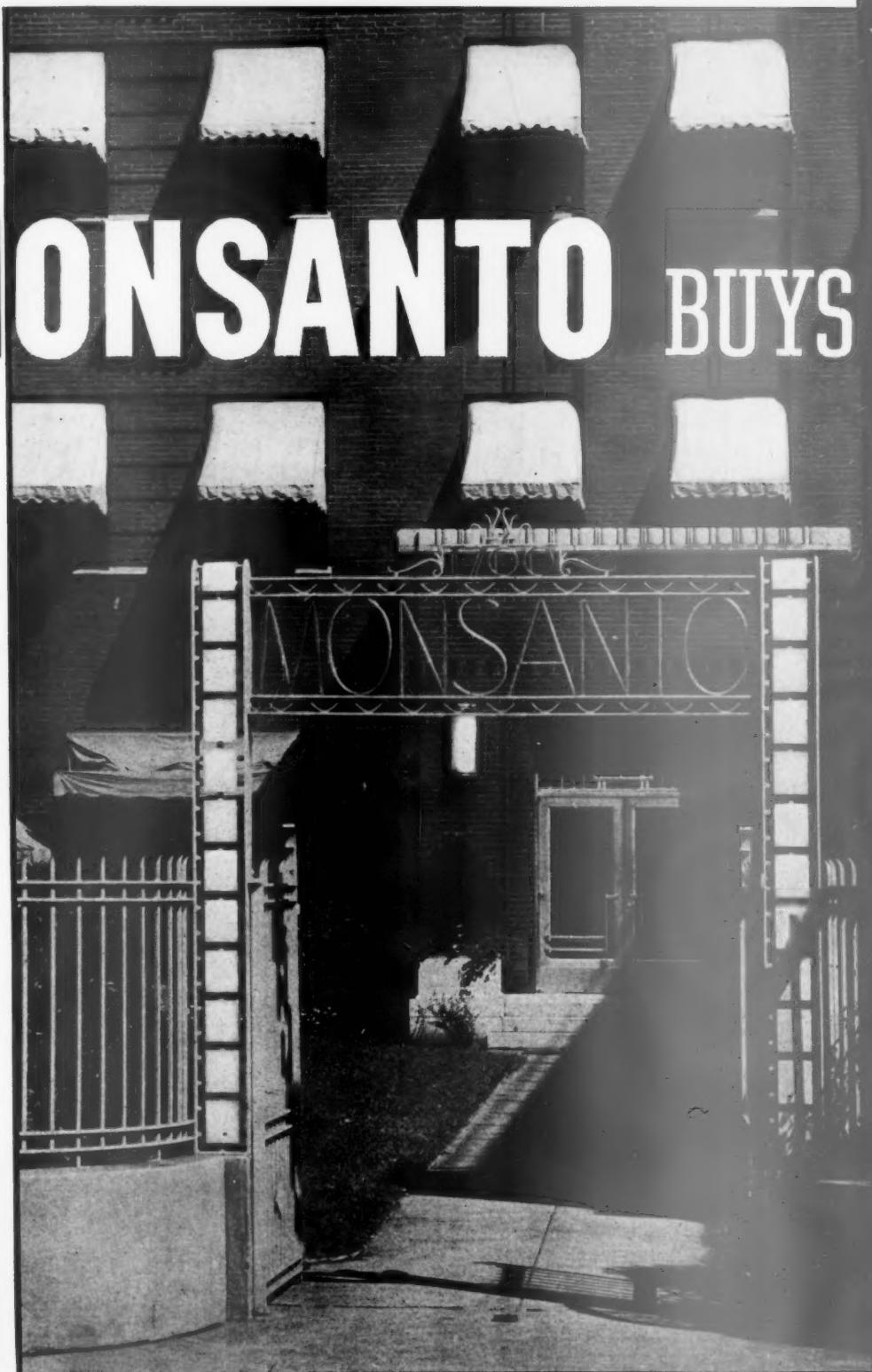
# HOW MONSANTO BUYS

90% of the requisitions received and handled by this purchasing department do not specify the make of material desired.

Founded by a Purchasing Agent, this study of a Chemical Company provides an interesting example of modern purchasing practice.



**Clayton A. Wolfe**  
Director of Purchases and Traffic



THE history of the Monsanto Chemical Company is inseparably interwoven with the history and growth of scientific purchasing. From its earliest 1901 days, when John F. Queeny, founder of the company, was both Purchasing Agent in another St. Louis business firm and organizer of Monsanto, purchasing functions have received fullest consideration in the organization of the management technique. Operating thirteen plants in the United States, and two British and one Canadian plant, this concern exemplifies many of the most progressive and modern methods in its purchasing

**C**LAYTON A. WOLFE, Director of Purchases and Traffic for Monsanto Chemical Company, attended Cornell University and advanced into the head purchasing position only after substantial experience as operating supervisor in the plant at St. Louis, Mo. Mr. Wolfe is a member of the National Association of Purchasing Agents and is very active in the local chapter. Popularly known to all as "Lupe", he is popular with other purchasing executives as well as with suppliers' representatives. He is 45 and is noted as a sportsman specializing in hunting and fishing. His duck shooting is on a par with his bridge playing, which is of championship calibre. (Incidentally, the editor warns optimistic bridge players that "Lupe" is rumored, according to Walter Watchells of St. Louis, to have a substantial outside income derived from expert playing of bridge hands. P.S. He does not play bridge with suppliers.)

He is also an ardent golfer, lives on the edge of a golf club in a home designed to whet a golfer's golf-

ing appetite. (His wife is woman champion golfer of St. Louis and it is rumored that she can beat Lupe even when he is at his best, although his friends report that no mention of this should be included in this article.)

His service record in the last World War was impressive. He filled the job of microphone man on sub-chasing details, listening to the beat of submarine engines and propellers with a Mason-sub-detector head-set on "mosquito fleet" boats. Regarding this experience he says: "Don't let anyone tell you you can't be seasick."

Mr. Wolfe came into Monsanto through the merger of the Commonwealth Division of the Mathieson Alkali Works with the organization. He started in as a laboratory boy and had worked up to the position of assistant manager of the Newark plant at the time it was taken over by Monsanto. Following the merger he advanced steadily and rapidly to his present position as one of the key executives of the corporation.

practices. Its system embodies all of the major advantages of sensible centralization, without losing the important values which are found in maintaining adequate local purchasing methods for meeting local procurement problems in its plant cities.

#### General Policies

The Monsanto purchasing system may be described as one which co-ordinates purchases centrally but

delegates local buying to local purchasing offices. The Director of Purchases is located at the home office in St. Louis where he manages the centralized purchasing functions and supervises local purchasing procedure delegated to individual purchasing departments in the plant cities. Basing his decisions upon a steady stream of mail, telephone and telegraphed contacts with the plants, he follows policy lines in his decisions, making exceptions whenever necessary to take care of unusual problems.

**The Monsanto organization extends literally from Coast to Coast. Purchasing control is centralized without sacrificing the values of adequate local procurement.**



The Traffic Manager reports to the Director of Purchases, thus making him responsible not alone for purchasing but also for freight handling, managing all inbound and outbound freight shipments as well as arranging all passenger traffic for the company. The department does not, however, supervise operations of the packing and shipping department.

### Golden Rule is Basic

In principle, the operations of the department are conducted on the Golden Rule basis of giving the same friendly and welcome reception to salesmen for other companies that Monsanto executives expect their salesmen to receive when calling on other firms. The attractive receptionist in the main lobby at the entrance to the general offices is instructed to insist upon receiving an answer from purchasing department personnel who are reached over a Dictograph which has 80 stations, until every salesman in the lobby has received a definite appointment or has had an opportunity to arrange to have his sales presentation placed before the proper buyer in the purchasing department. Thus every salesman knows exactly what to expect, whenever he calls upon the company and every effort is made to conserve the time of all visitors so that no time is wasted in waiting. A record is kept of every call so that purchasing executives can accurately check the dates of every salesman's visit. The lobby is decorated with animated miniature models of the various plants of the company. By viewing these dioramas, visitors can visualize the various types of plants actually operated by the company and can be better informed in talking with buyers.

### Functional Organization

In the buying organization, the Director of Purchases and Traffic reports directly to the Executive Committee of the Company. In the main office at St. Louis each buyer has been assigned certain items and commodities falling in a related group for which he is responsible. One buyer is responsible for the procurement of items purchased locally and for tracing materials. The buyers located at plants outside of St. Louis are responsible for local purchases and report to the Director of Purchases and Traffic at St. Louis.

### St. Louis Personnel

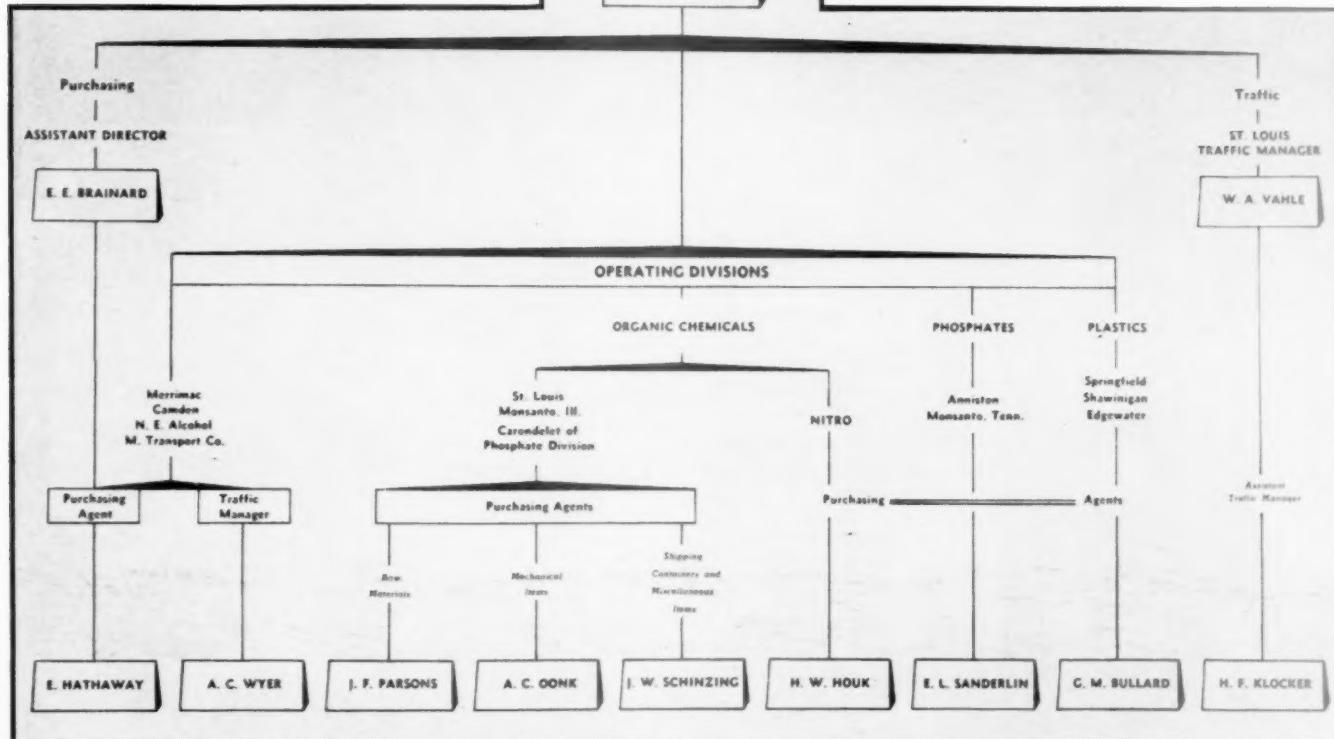
**Joseph F. Parsons**, Purchasing Agent in charge of raw materials, joined the Monsanto organization in 1918 as a laboratory assistant in the St. Louis plant. Eight years of laboratory and plant experience, and twelve years as production supervisor, preceded his appointment to the purchasing staff in 1938.

**Alfred C. Oonk**, Purchasing Agent in charge of equipment and supplies, came to Monsanto as Assistant Traffic Manager in 1918. His duties gradually shifted from traffic to purchasing work, and he has served in his present capacity for several years.

**Joseph W. Schinzing**, Purchasing Agent in charge of miscellaneous supplies, tools, office equipment and printing for all Monsanto plants, has a background of chemical manufacturing experience with the Mallinckrodt Chemical Company and Meyer Brothers Drug Company, and purchasing experience with the John T.

## PURCHASING

## PERSONNEL





**Top row, left to right:**

**J. F. Parsons, St. Louis  
A. C. Oonk, St. Louis  
J. W. Schinzing, St. Louis**

**Center row, left to right:**

**G. M. Bullard, Springfield  
H. W. Houk,  
Nitro, W. Va.  
E. F. Hathaway, Everett**

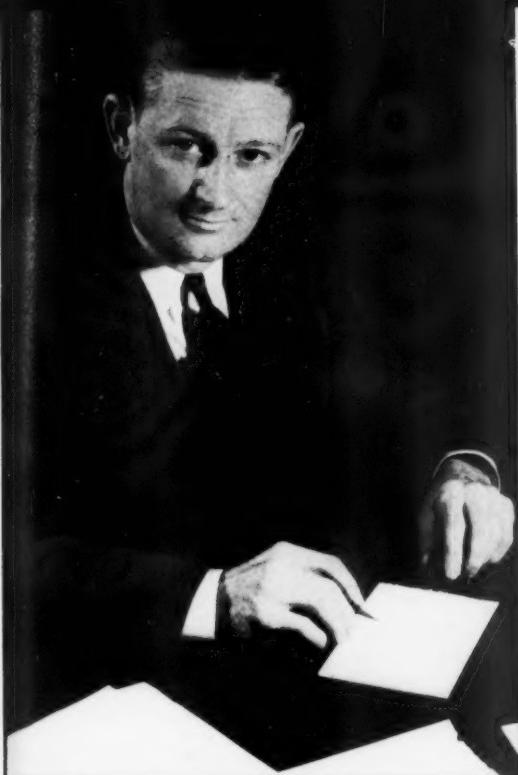
**At left:**

**T. P. Callahan, Everett**

Milliken Company, pharmaceutical manufacturers. He joined Monsanto in 1922 as order and invoice clerk in the purchasing department, subsequently advancing to his present position.

**Willard E. Decker**, Buyer, came with the Monsanto organization in 1929 after several years of service in Y.M.C.A. work. He started as a clerk in the purchasing department and advanced to the position of buyer.

**T. Pat Callahan** obtained plant experience in the shipping department of the Merrimac Chemical Company from 1919 to 1927. After a period spent in business on his own account, he returned to Merrimac, which had been acquired by Monsanto in 1929. He was again employed in a manufacturing capacity until 1933, when he was transferred to the order department of Monsanto's Merrimac Division. In 1936 he was brought to the home office in St. Louis in his present position. He is in charge of specifying and purchasing all containers, keeping abreast of new developments in this field, and supervising containers in shipment to



assure strict conformance with the requirements of the Interstate Commerce Commission and the Bureau of Explosives.

**Walter A. Vahle**, Traffic Manager, came to Monsanto in 1922 after extensive practical experience with the San Francisco Railway Company. He started as Assistant Traffic Manager for the company and now heads this division of the department.

**Harry F. Klocker**, Assistant Traffic Manager, has held this position in the organization since 1936. His previous experience was with the M-K-T Railroad, where he worked up from a job as office boy to the position of Assistant General Freight Agent in charge of Interstate Commerce Work and rate adjustments in the Western Trunk Line territory.

#### Division Purchasers

**Everett E. Brainard**, Assistant Director of Purchases, located at the Merrimac Division, Everett, Mass., entered the employ of the Merrimac Chemical

**Top row, left to right:**

**W. E. Decker, St. Louis  
W. A. Vahle, St. Louis  
H. F. Klocker, St. Louis**

**Center row, left to right:**

**T. Pat Callahan, St. Louis  
E. E. Brainard, Everett**

**At right:**

**E. L. Sanderlin, Anniston**





**The company's own maintenance department bids on construction proposals the same as any outside contractor. On special printing projects, cost data is assembled on the original bill of particulars.**

Company as an order clerk in 1898, immediately after his graduation from high school. He advanced through the order, accounting, purchasing and traffic departments to the position of Director of Purchases for the company and a member of the Executive Committee. He came to Monsanto when the Merrimac Chemical Company was acquired in 1929. He has served as president, vice-president and treasurer of the New England Purchasing Agents' Association.

**Edward Hathaway**, Purchasing Agent of the Merrimac Division, started with the Cochrane Chemical Company in 1902, and came into purchasing by way of successive assignments as shipping clerk, paymaster, and storekeeper. He has been continuously with the organization since that time, when Cochrane was acquired by the Merrimac Chemical Company and the latter in turn acquired by Monsanto eleven years ago.

**T. P. Callahan**, in charge of specification containers for the Merrimac Division, joined the Merrimac Chemical Company in 1900 as storekeeper, after serving as freight agent for the Boston & Maine Railroad. He served as paymaster and traffic agent before devoting his entire attention to container problems. Mr. Callahan is chairman of the steel barrels and

drums committee of the Manufacturing Chemists' Association, and represents that association in the National Protective Association. He is also a member of the test and specification committee of the Compressed Gas Association.

**Glenn M. Bullard**, Purchasing Agent for the Plastics Division at Springfield, Mass., also buys for the Resinox Corporation and Shawinigan Resins Corporation, Monsanto subsidiaries located respectively at Edgewater, N. J., and Springfield, Mass. Mr. Bullard's business career started with the Fiberloid Corporation in 1906, and he progressed to his present position through the billing and purchasing departments, coming into the Monsanto organization when Fiberloid was acquired in 1938.

**H. W. Houk**, Purchasing Agent at the Nitro, West Virginia plant, is also in charge of stores and traffic there. He started as a plant workman for the Rubber Service Laboratories Company in 1923, and spent two years in production and shipping work before he was transferred to purchasing. Monsanto acquired the Rubber Service Laboratories in 1929.

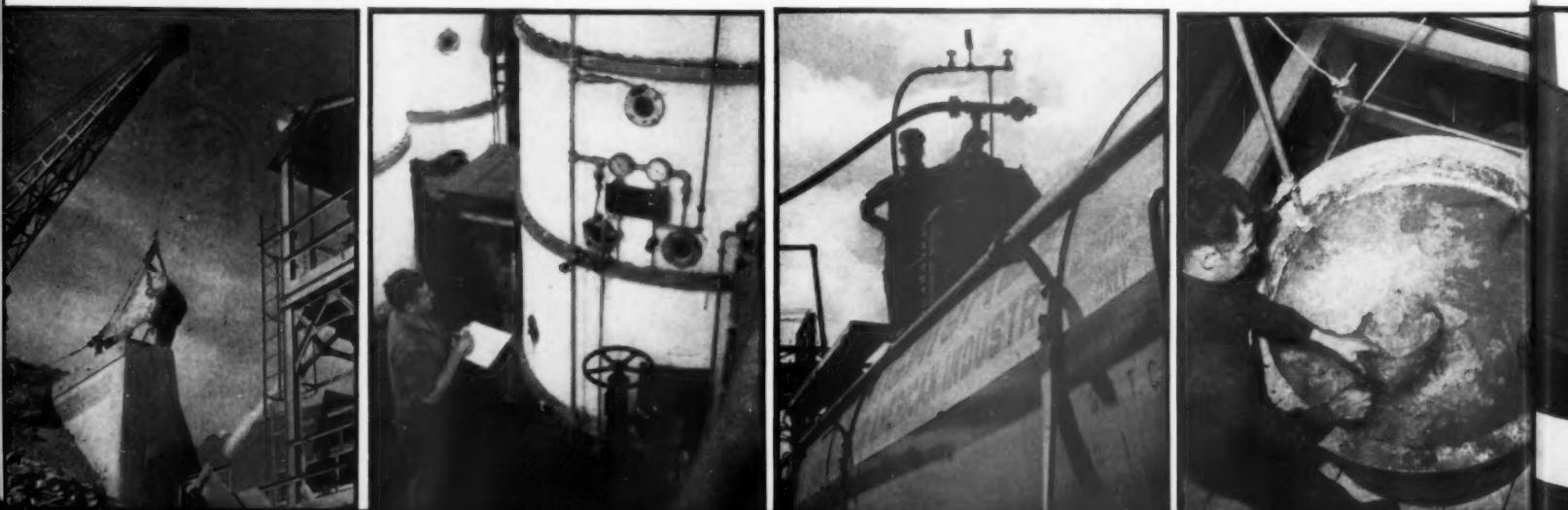
**Earnest L. Sanderlin**, Purchasing Agent for the Anniston, Alabama, and Monsanto, Tennessee plants, with headquarters at Anniston, was for seven years chief clerk of the purchasing and contract branch of the U. S. Government Field Service. He became Assistant Purchasing Agent of the Swann Chemical Company in 1927, and came into the Monsanto organization when the Swann Company was acquired in 1935.

#### **Modern Equipment Essential**

It is an established policy of the company to use the latest and best types of office equipment to expedite the handling of purchasing routine. For example, teletype service is available to handle rush requisitions. Orders are typed out by stenographers using electric typewriters in a completely air-conditioned office. Modern instantaneous intercommunicating systems are installed in the office so that necessary conversations can be carried on with a minimum of lost time, eliminating the necessity for switchboard connections between executives. Office furniture planned for efficient work

#### **Photographs Below:**

**Typical Monsanto processes.** Left to right: Washing phosphate ore; Caustic soda evaporators; Emptying a chlorine tank car; Manufacture of Santocel, a new product; Tennessee phosphate plant; Reaction kettles; Pilot plant at the St. Louis works; Chemical storage tanks.



## WHAT THE MANUAL OF MONSANTO PRACTICE HAS TO SAY ABOUT PURCHASING

### Purchasing and Traffic Departments

The Purchasing and Traffic Departments shall be headed by the Director of Purchases and Traffic. Activities having to do with traffic will be headed by the Traffic Manager, who will be responsible to the Director. The Directors will consult General Managers on all major problems.

The main functions of the Purchasing and Traffic Department will be:

1. Purchasing of all materials and supplies and having materials available at proper points at times specified by the Operating Divisions.
2. Price studies.
3. Supervising movement of incoming material, outgoing products, and passenger transportation of Company travelers.
4. Supervising containers of all types, in conjunction with the Sales Departments of the Operating Divisions, and in accordance with the requirements of the Advertising and Toxicological Departments.
5. Supervision of maintenance of tank cars in conjunction with the Operating Divisions responsible for cleaning and painting so that the fleet will be a credit to the Company.
6. The Traffic Department shall furnish rate and route information and analyze tariffs, rates and services.

### Delegation of Functions

Because of the wide variety of items purchased and the distances between Plants, these functions cannot be economically and efficiently carried out by a completely centralized or by a localized purchasing organization. Therefore, a middle course of partial centralization and partial localization of purchases is considered best with final authority rested in the Director of Purchases and Traffic.

Items of exclusive interest to any one Division or Plant should be purchased by the Division Purchasing Agent in local markets when possible. Such items as cannot be purchased on National User's contracts in order to take advantage of larger discounts for joint purchases, also may be purchased locally. Economy

demands joint purchases and contracts on requirements common to several or all Plants. National User's contracts to cover all Plants and Divisions are used wherever possible in order to effect the greatest saving.

The Purchasing Agents at Plants are responsible to the Director of Purchases and Traffic.

All matters of Company policy related to Purchasing and Traffic, and reciprocity shall be referred to the Director of Purchases and Traffic.

Testimonials, photographs, and letters of commendation are to be discouraged and are not to be issued without the combined approval of the Director of Purchases and Traffic and the Director of Advertising and Monsanto Practice.

### Relations with Divisions and Other Departments

The Purchasing and Traffic Departments are a service section established to supply the needs of Divisions and other Departments. It is therefore necessary that there be efficient co-operation and mutual confidence between Operating Divisions and the Departments. The buyer must know the particular requirements of the various users of materials. Plant Departments, such as Stores and Engineering, should give the Purchasing Department ample time to do an efficient job in procuring materials for them. The Purchasing and Traffic Departments' first responsibility is to the Operating Division, to see that materials are stocked for use when needed by Plants and finished products shipped as promised by Sales Managers.

The Purchasing Department at times may be able to make valuable suggestions on substitute materials, changes in quality or specifications which will reduce cost of finished product. This applies to all Departments, such as Traffic, Engineering, Service and Research.

It is the duty of the Purchasing Department to develop new sources of supply and call to the attention of the proper Department new items and developments.

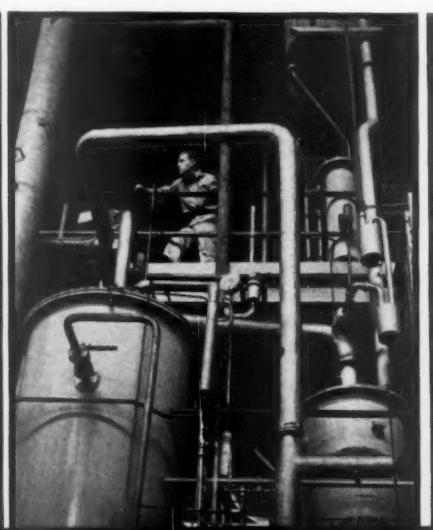
Departments requiring information such as prices, specifications, and availability of supplies, on raw materials to be used in new developments, shall obtain this information through the Director of Purchases and Traffic.

makes it possible to have necessary information readily accessible in each office so that little time is lost in walking around the department to consult purchasing files for important data.

Since the largest dollar volume of purchases is in raw materials, these problems naturally command the most attention. All raw materials are covered by detailed specifications developed jointly by the purchasing department, production department and the research laboratory of the company. The research laboratory consults with the purchasing heads so that specifications will be flexible and permit buyers necessary latitude.

If the specifications as received from the production department, for example, are too rigid, it is the duty of the purchasing department to show how and why the specifications can be changed so as to obtain necessary latitude in bidding in order to avoid excluding potential suppliers who may have valid reasons for following different formulas or processes in manufacturing their products.

The Purchasing Department follows a general policy of having alternate suppliers available so that no one purchased item is solely dependent upon one source of supply. This distinction is set up not only by classi-



ifications of the types of products purchased, but is also set up along geographical lines, so that if, for example, shipments are prevented by flood from being shipped from Pennsylvania suppliers' plants, adequate supplies can be obtained from a Louisiana plant located outside the flooded area.

### Cooperate with Suppliers

"It is never good business to shut out any reliable suppliers," was the official statement of Monsanto Purchasing Policy expressed to the writer. "We cooperate with our suppliers as far as it is humanly possible by anticipating our orders, having estimated our future production needs. Then by going even one step further and actually placing the business sufficiently far in advance so that the shipments can be economically scheduled reasonably in advance by the supplying manufacturer we arrange our work so that he can take maximum advantage of opportunities for rendering the best possible service to us on the most profitable basis to himself. This is an essential in the ethics of purchasing because no supplier can do his best when every order is a rush shipment and when excessive costs of emergency handling are added to normal costs of manufactured products."

"An equally important point in our policy is that of not playing one supplier against another. If these two ethical points are observed, both buyer and seller profit the most from mutual satisfaction with the business transaction."

Another general policy of the purchasing department is never to chase prices upward when buying large quantities of materials. If prices show a pronounced trend upward, and sudden widely fluctuating market movements occur, the purchasing executives wait until market prices have stabilized on a definite level before closing additional commitments. By this and other methods, all Monsanto buyers avoid speculation in buying. In following these policies it is expected that the buyers will be shrewd but not tricky in their dealings. In other words, opportunities which offer legitimate price concessions for volume purchases or immediate deliveries are taken up when they seem desirable, but forced deals are never considered.

### Executive Committee Procedure

The Director of Purchases prepares a monthly report of major purchasing activities for the executive committee. This group is composed of the executive Vice-president of the firm, Charles Belknap, President Edgar M. Queeny and Vice-president Gaston DuBois. The committee meets daily at 11 o'clock and major purchasing projects which require spot action can be discussed at these meetings.

### Axioms of Successful Purchasing

Long experience has developed some axioms of buying which are widely quoted within the organization. For example, it is a rule to "Never buy more than is needed. Nothing is a bargain if you do not need it."

**A general view of the purchasing department at St. Louis.**

**Purchase orders are written on electric typewriters.**

**The teletype is extensively used for expediting company routines.**

**Miss Hazel Gibson, receptionist at the St. Louis office, sees to it that the salesman reaches the proper buyer, promptly; on the wall may be seen one of the dioramas showing company plants and processes. Below: A telephone is maintained in the lobby for the convenience of business callers.**

The corollary to this axiom is "Always have material at the plant when you need it. Price savings are valueless if materials are not in the plant when they are required for production." It is emphasized also that buyers are not necessarily price buyers, simply because the prices on certain orders are low. Many instances are cited where the purchasing department has offered suggestions to suppliers making possible lower but still profitable prices.

It is an axiom of the purchasing organization to never take advantage of the other fellow's mistake. If a supplier has misfigured a quotation, the order will be cancelled by Monsanto buyers rather than to take advantage of it. It was observed that suppliers frequently make mistakes on their invoice. Monsanto buyers correct these errors when they are made in their favor, but of course insist upon the proper billing price when errors are in the supplier's favor.

#### **Purchasing Department Final Factor**

Although the purchasing executives make no special effort to keep supplier's salesmen away from operating executives in the plants, it is customary for all salesmen to present their offers to the purchasing department, first, before being allowed to discuss products with engineers or operating men. In the final analysis, while the engineers and operating men may then make recommendations to the purchasing department, the latter have full authority to question all specifications and requisitions and oftentimes suggest substitutions of alternative products which will be equally satisfactory in production operations. No officer of the company ever attempts to influence the purchasing decisions and it is not recalled that in any case has a high executive asked the purchasing departments to switch orders from one supplier to another. This appears to be an absolute rule of the corporation. Usually, it is noticed upon examining the record of purchases of this organization, products upon which plant men develop rigid specifications of the "make" of equipment are in the buying of highly specialized process equipment which can frequently be obtained in only one style or type. Such products particularly as specialized filter presses are typical of these specifications.

#### **Construction Contracts**

An interesting example of an efficient buying system is observed in the method used by this company in the handling of construction contracts. Whenever a construction project is to be undertaken, the plant superintendent and engineers at the plant get together and draw up plans and specifications in conjunction with the engineering department. When the proposed additions have been submitted to the main office and have received executive approval so that the project can go ahead, and some provision has been made for absor-



ing the cost of the new addition, the plant organization then assembles a complete estimate of the cost of construction in the form of a bid to the purchasing department, bidding on the plans and specifications exactly on the same basis as an outside bidder.

These plans and specifications are then prepared for submission to outside contractors and it is the established policy of the purchasing organization that outside, or local contractors in each plant city will receive the contract unless the plant organization can show substantial savings by erecting the building with their own employees. This policy is developed out of the desire of the company to have the plant men concentrate upon manufacturing the products of the company rather than upon construction work which might remove them from full responsibility for processes and products in the plant temporarily.

During the past year, approximately \$4,000,000 was undertaken on this basis. At least one-fourth of this work was small jobs involving small building projects. On all of this work, the maintenance department submitted bids to the purchasing department in competition with outside contractors. This rule is invariably followed except when production is low and the additional work is needed in the shop in order to avoid layoffs for regular employees. In the latter case, the company men must be put on the construction job.

PURCHASE CLASSIFICATION		MATERIAL											
Purchase Order Number / Date	Req. No.	PURCHASED FROM		Quantity	DESCRIPTION		PRICE	PREPAID	RECEIVED	RECEIVED	MISC CHARGES	INVOICE DATE	AMOUNT
							\$	%	COLLECT	Ques.	Date	Ques.	Date
MONSANTO CHEMICAL COMPANY													
PURCHASE RECORD													
PLANT A													
REQUISITION TO THE PURCHASING DEPARTMENT													
Monsanto Chemical Company													
Req. No. 8 40545 A													
Date _____													
Please Ship to _____													
Delivery required _____ Ship Via _____													
Required for _____													
Est. No. _____ Date App. _____ Terms _____													
Order No. A Charge to _____													
Quantity	ITEM	Weight On Board	Price										
Approved _____ Approved _____ Approved _____													
THIS SPACE RESERVED FOR PURCHASING DEPT.													
Analyst _____ Approved _____													

### Raw Material Contracts

Raw materials are largely contracted for upon an annual basis, controlled entirely by the Director of Purchases and the Executive Committee. Mr. Wolfe analyzes market trends and carefully develops complete data upon market conditions governing the prices of each commodity before the final decision upon the contract is made. Many of these contracts involve the expenditure of millions of dollars per year for individual products. Some of the major contracts of this type are those covering sulphur, alcohol, salt, caustic soda, soda ash, naphthalene and benzol.

Major requisitions of other items of large size, not covered by annual contracts, go from the plants to St. Louis where they are brought to the attention of Mr. Wolfe. Upon receipt of commodities at the plants, every lot is analyzed by the analytical laboratories which work closely with the purchasing department. The laboratory approval must be submitted to the purchasing department before the shipment is actually accepted. Shipments are carefully checked against both quality and quantity specifications. When orders are placed, prices are entered on commodity record cards in a permanent file which not only provides the checking reference on deliveries but also is used as the basis for calculating consumption requirements and price trends. This data is supplemented by information received from daily market quotations, trade publications, confidential services, field reports, newspapers and salesmen's quotations.

Requisitions for materials and supplies originate in the storerooms, except for equipment requisitions which originate with plant engineers. Requisitions must be approved by the storekeeper at each plant, and also by the plant engineer, superintendent, or mechanical engineer in charge of the operation of the plant. Local requisitions go to the local purchasing departments in the plant cities and supply items for factory maintenance are purchased wherever possible from local distributors. However, if the items to be procured are available under a national contract covering all of the plants, the national purchase price is applied to the local order. Otherwise, each local plant has certain approved suppliers from whom they buy. From time to time, reports on specific products are transmitted from one plant city purchasing department to another, as may be required by circumstances, in order to compare prices, quality and services.

Local buyers are not restricted solely to supply items, however, or to the purchase of small quantities. For example, the local buyer at the Anniston, Alabama plant purchases 100,000 tons of process coke breeze per year for use at the Monsanto, Tennessee plant. Obviously his selection of suppliers must meet with the approval of the Director of Purchases; however, his purchasing is largely a matter of using his own best judgment.

Individual operating departments do not attempt to purchase over the heads of the purchasing department in this organization. For example, even the printing

and lithography, the engravings and art work required by the large advertising and public relations program of this company go through the purchasing organization.

### Forms and Records

The paper work of purchasing routine and records is held to a minimum consistent with completeness and efficient operation, and the procedure can readily be followed by reference to the key forms reproduced herewith.

On the regular run of materials and supplies, requisitions are normally sent by the engineering and operating departments to the storeroom, these requests showing both the quantity desired and the material on hand, and indicating the particular department or job number for proper allocation of charges. Requisitions for items to be purchased are made out by the stores department upon receipt of operating requisitions which can not be filled from stocks on hand or whenever such stocks need replenishment. This form shows the quantity and delivery date required, as well as the balance on hand and the necessary approvals. These requisitions are routed to the appropriate buying officer, either locally or at the headquarters office in St. Louis, teletype transmission being used for urgent cases.

The purchase order is the working document, following the transaction through to the receipt of the material and completing the record of purchase when all copies have served their purpose and are returned to the files.

The original and duplicate are fully printed forms, and are sent to the vendor, the duplicate being returned

as an acknowledgment of the order with delivery promise and confirmation of price.

Copies 1, 2 and 3 are blank sheets except for a colored number identification in the upper right hand corner, and show only the typewritten information which is inserted on the original order when issued, since this is of course sufficient for internal file and reference purposes. Copies 1 and 2 are retained in the purchasing department to be cross-filed according to the vendor's name and also according to order number. Copy 3 is filed at the plant office for purposes of record.

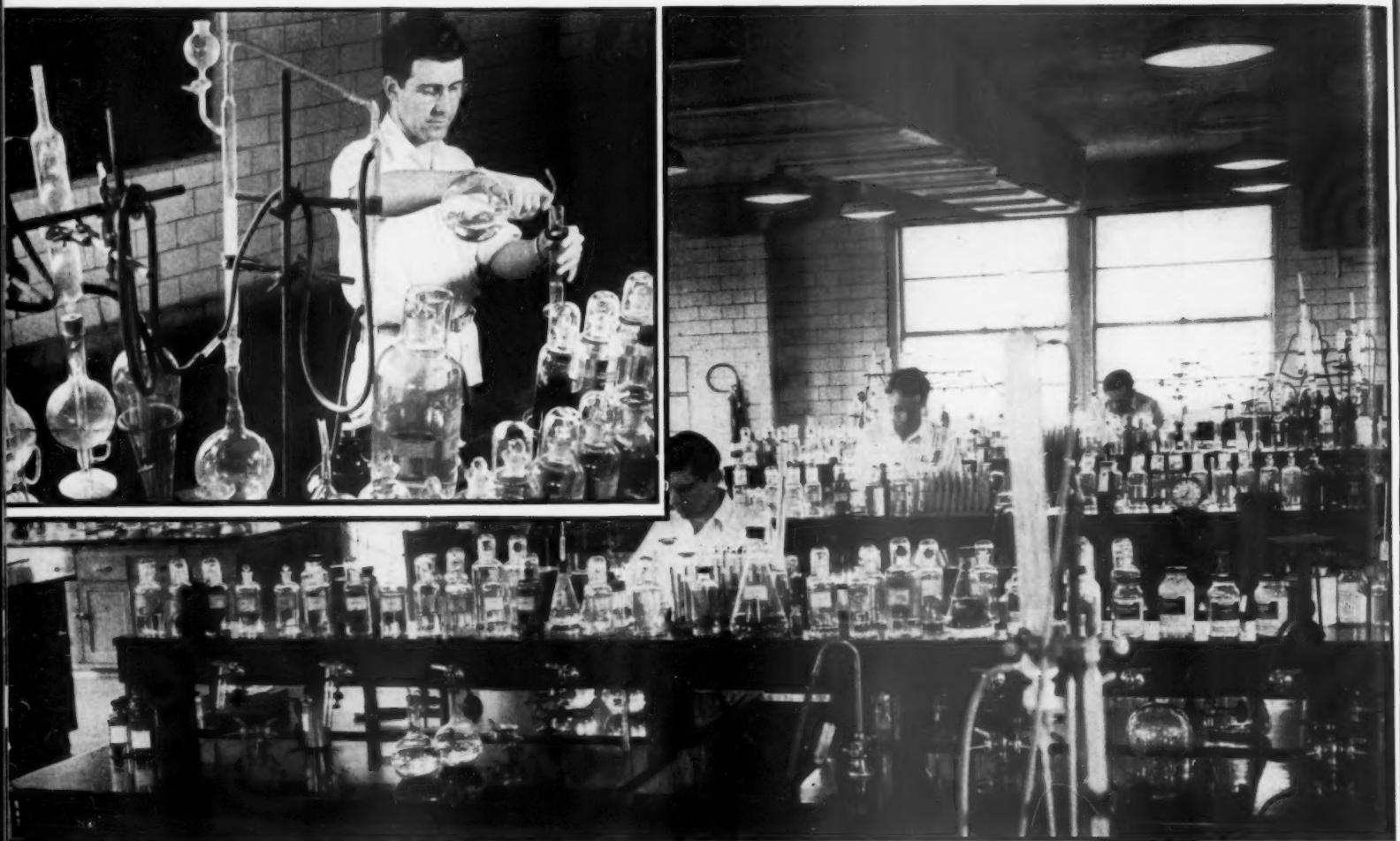
Copies 4, 5, 6 and 7, which are identical except for the numbered corner identification, constitute the receiving report. They are sent to the storeroom, where No. 4 is filed according to vendors and No. 5 according to purchase order number. Upon receipt of the shipment, the stores department fills in the data regarding date and manner of shipment, amount received, car number and billed weight. Any shortages or breakage are reported at once, and the stores department also indicates whether the shipment is to be charged directly to a particular job or is to be accounted for as a general stores item. Copies 6 and 7, with this information, are then returned to the purchasing department, where the former is used to complete the invoice record and the latter to complete the purchasing department file record of the transaction.

Debits and credits to vendors for the return of incorrect shipments, drums, reels, etc., and for the correction of freight charges, deductions, and the like, are handled on a memorandum basis, two corresponding forms being used for this purpose. In each case, four copies of the memorandum are made: the original for the vendor, the duplicate for purchasing files, and two

<b>Monsanto Chemical Company</b> <small>1100 SOUTH SECOND STREET ST. LOUIS, MO.</small> 		<b>PURCHASING ORDER NUMBER</b>  <small>Show above number on Packages, Invoice, Bill of Lading and Shipping Notice.</small>
<b>NOTICE</b> <small>INVOICE IN DUPLICATE</small>		
<small>Enter order for the following material. It is understood that the conditions and instructions printed on the reverse side hereof constitute a part of this order.</small> <b>SHIP TO</b> Monsanto Chemical Company		
Via _____ Terms _____	<small>ACKNOWLEDGE THIS ORDER ADVISING DELIVERY IMMEDIATELY. MAIL INVOICE IN DUPLICATE TO ST. LOUIS, MO., NOT LATER THAN 3 P.M. AFTER SHIPMENT. PRICE EACH ITEM SEPARATELY. SHOW CASH DISCOUNT.</small>	
Quantity _____	Material _____	Price _____
<small>Deliver between 8 A.M. and 3:30 P.M. No Deliveries Received on Saturday or between 12 M. and 3 p.m., except by Special Arrangement. If truck or rail shipment, bill of lading must be mailed same day to shipping point.</small>		
<small>Monsanto Chemical Company C. A. WOLFE, Director of Purchases By _____</small>		
<small>We hereby acknowledge and accept the above order. We can furnish material as specified and will ship on or before _____ 19_____. Date _____ Signed _____ NOTE - THIS ACKNOWLEDGMENT MUST BE RETURNED AT ONCE WITH CORRECT PRICE INSERTED.</small>		

<b>Monsanto Chemical Company</b> <small>RECEIVING REPORT</small>		<b>4</b>
Received From:	Date Received _____	
<small>REPORT ANY SHORTAGE OR BREAKAGE</small>		
Via _____	Signed _____	
<small>CHARGE JOB DIRECT TO DEPT. No. _____ STOREROOM TICKET WILL BE ISSUED</small>		
Car No. _____	Initials _____	Billed Weight _____

A nine-part purchase order form provides complete control over the transaction from start to finish. Shown on the opposite page are the requisition and records of materials.



**The analytical laboratory is used both for purchasing department inspection and for control over company processes and products.**

copies to the accounting department for billing purposes. There is also a form for the shipment and debit to the plant, for the return of rejected shipments, containers, etc.

In the purchase record, raw materials are separately listed in a loose-leaf visible file book, showing, on a  $10\frac{1}{2} \times 4\frac{5}{8}$  inch sheet with space for 38 entries, the order number, vendor, date ordered, quantity, to be shipped, invoice date, car number, number and kind of packages, weight, unit, price, amount of invoice, lot number, quality, receipt, and reference. A record of purchase contracts in force is kept in similar form, listing the essential points in connection with each such agreement.

On all items other than raw materials, the purchase orders are entered on a purchase classification sheet,  $19 \times 12$  inches, indexed by entering the name of the item in the upper right hand corner. This record carries the following information: purchase order number and date, requisition number, purchased from, quantity, description, price, prepaid or collect, quantity and date received, miscellaneous charges, date and amount of the invoice.

Due to the nature of the Company's business, it is necessary to handle many products that are classified by the Interstate Commerce Commission and Bureau of Explosives as dangerous and inflammable. The Company also manufactures approximately 300 different items, many of which fall within this classification. The Purchasing Department employs two men who are experts in this field and it is their duty to see that all containers used in shipping regulatory items are of

proper classification. It is also their duty to develop containers suitable for new products.

The Legal Department also must be consulted by the purchasing organization to see that contracts are properly drawn up, also regarding taxes. The Company manufactures many drugs, pharmaceutical and medicinal products that must be properly labelled and packed to comply with the provisions of the new Food and Drug Act. It is the duty of the Purchasing Department to see that these labels and packages are correct in every detail and to have them O.K'd by the Legal, Medical, Patent, and Advertising Departments.

#### **Reciprocity**

It is the opinion of the Monsanto Purchasing Department that reciprocity is now an important factor of purchasing—almost as much so as quality and price. They do not stress the subject, but have to deal with it practically every day. Any company buying from Monsanto is considered a good customer and friend regardless of the size of his purchases. It is only fair to reciprocate to some degree provided all conditions are equal. There can be no objection to two firms dealing with each other if they are fair in their transactions and do not place reciprocity on a dollar and cents basis.

#### **Salvage and Scrap**

The Purchasing Department is responsible for disposing of all scrap, waste, and salvage materials from all plants, and is jointly responsible with the Engineering Department for the disposal of surplus equipment.

**NEW**



# HORIZONS for ENTERPRISE

BY ALFRED P. SLOAN, JR.  
CHAIRMAN OF BOARD, GENERAL MOTORS CORP.

**H**Igher standards of living, increased employment, new investment opportunities, as well as broad advances in our general social and economic well being, have come about as we have been able to improve and extend the production of useful goods and services.

In the past two or three generations, we as a people have been able to supply the needs of a population that has increased sevenfold inside of a century. More than that, we have trebled our income per person, by increasing by three times the per capita supply of goods and services available for use. This growth has been cumulative with each new invention, each addition to our fund of scientific knowledge, each new application of industrial research, opening the way to still more im-

portant findings and still wider benefits. Since 1900, for instance, our technological progress has exceeded that of all previous periods combined.

This progress has persisted in spite of depressions and other interruptions, which have always been followed by revived activity that carried us to new high planes of living. And our greatest strides in providing more things for more people have been made at a time when the influence of the geographical frontier upon our national economy was steadily dwindling. Instead, it has been from industrial research and advancing technology that our rising scale of living and the consequent increase in opportunity have evolved.

*Continued on page 117*

**AMERICA'S INDUSTRIAL FRONTIERS**



## ALBERT PLEYDELL

First Deputy Commissioner  
of Purchase  
City of New York

New York City has revamped  
its purchasing procedure with  
startling results in greater ef-  
ficiency and value received

# Getting a Million Dollars' Worth of PRINTING for \$1,000,000

By STUART F. HEINRITZ

**F**IVE years ago this month, the responsibility for the major purchases of printing and stationery for the City of New York was transferred from the Board of City Record to the Department of Purchase. The experience of Commissioner Russell Forbes' department on this assignment provides a strik-

ing example of what centralized purchasing can accomplish—not by shopping around for price, but by the application of sound common sense procedure. By and large, the printing trade in New York is much happier about the situation as it exists today, the union wage scales are being maintained, and the City

is being better served while saving literally thousands of dollars on its printing bills through the elimination of wasteful expenditures.

The printing situation at that time was generally known to be unsatisfactory. Less than four months after his appointment, and even before his department had been given

charge of the printing contracts, Forbes had recommended that the union label should be required on all City printing as a guarantee that it had been produced in responsible shops. One of his first acts after taking over the responsibility of procurement was to appoint Deputy Commissioner Albert Pleydell, then a special investigator in the department, to look into the entire matter.

For some years prior to this, the bulk of City printing contracts had been awarded to two concerns—M. B. Brown Printing and Binding Co., and the Burland Printing Co. The Department of Purchase made a determined effort to introduce wider and more effective competition, and though one of the old companies succeeded in holding the contracts on a low bid, this did result in a saving of some \$27,000 on the City Budget printing and \$75,000 on the City Record printing, as compared with the prices previously

paid. The New York Employing Printers Association, which has been thoroughly cooperative throughout this entire period, contended that the prices were actually below cost, a condition which suggested the possibility of short count, inferior paper, or the farming out of contracts to printers who would not have been considered as reliable bidders. These surmises were exceedingly hard to prove, as inspection was under the Comptroller's department, outside of Purchasing jurisdiction, and deliveries were made direct to using departments, where frequently a substantial portion of the delivery was used before any inspection could be made. That situation was notably improved in 1938 with a change in the Comptroller's office, resulting in a reorganization of the inspection division and greater cooperation with purchasing. It was not until the fall of 1938, eighteen months after

the Department had undertaken a strict enforcement of the regulation against subletting contracts, that one of the two leading suppliers was found guilty of a violation and declared to be an irresponsible bidder. That company is now in bankruptcy.

Meanwhile, the picture had been complicated in 1934, when printing for the work relief program of T.E.R.A. was also placed in the hands of the department. A special state law had been passed, confirming a previous ruling of T.E.R.A., that any local welfare purchasing agency was privileged to buy against existing state contracts. It was deemed advisable to follow this procedure, and for several months orders were placed on this basis for relief printing. But there were other troublesome factors, as, for example, the requirement that special forms prescribed by T.E.R.A. be used and the ruling that these forms

FIGURE 1—BOND PAPERS

Grade	Weight Pounds	Opac- ity Min- imum %	Bright- ness Min- imum %	pH Value		Maxi- mum Per Cent Ash	Maxi- mum Per Cent Rosin	Burting Strength (Mullen) Points, min.	Minimum Folding Endurance (Double Folds in Either Direction)	Minimum Tearing Resistance (Average in Either Direction) Grams
				White	Colored					
100% Rag	13	70		5.0	4.7	2.0	1.7	30	1000	39
	16	75		5.0	4.7	2.0	1.7	40	1160	53
	20	80		5.0	4.7	2.0	1.7	50	1380	73
	24	85		5.0	4.7	2.0	1.7	60	1600	92
50% Rag	13	65		4.5	4.2	5.0	1.7	23	250	32
	16	70		4.5	4.2	5.0	1.7	28	320	44
	20	75		4.5	4.2	5.0	1.7	35	410	62
	24	80		4.5	4.2	5.0	1.7	42	500	80
25% Rag	13	65		4.5	4.2	5.0	1.7	21	160	28
	16	70		4.5	4.2	5.0	1.7	26	190	40
	20	75		4.5	4.2	5.0	1.7	32	230	57
	24	80		4.5	4.2	5.0	1.7	38	275	74
100% Sulphite	13		75	4.5	4.2	5.0	2.0	19	100	20
	16		75	4.5	4.2	5.0	2.0	24	120	27
	20		75	4.5	4.2	5.0	2.0	30	150	37
	24		75	4.5	4.2	5.0	2.0	36	175	47

LEDGER PAPERS

Grade	Weight Pounds	Bright- ness Min- imum %	pH Value		Maxi- mum Per Cent Ash	Maxi- mum Per Cent Rosin	Burting Strength (Mullen) Points, min.	Minimum Folding Endurance (Double Folds in Either Direction)	Minimum Tearing Resistance (Average in Either Direction) Grams
			White	Colored					
100% Rag	24		5.0	4.7	2.0	1.7	55	1000	88
	28		5.0	4.7	2.0	1.7	63	1225	110
	32		5.0	4.7	2.0	1.7	71	1460	132
	36		5.0	4.7	2.0	1.7	79	1700	155
50% Rag	24		4.5	4.2	5.0	1.7	40	300	75
	28		4.5	4.2	5.0	1.7	45	350	95
	32		4.5	4.2	5.0	1.7	50	400	116
	36		4.5	4.2	5.0	1.7	55	450	136
100% Sulphite	24	73	4.5	4.2	5.0	2.0	30	150	43
	28	73	4.5	4.2	5.0	2.0	35	175	59
	32	73	4.5	4.2	5.0	2.0	40	200	75
	36	73	4.5	4.2	5.0	2.0	45	225	92

were chargeable to the department as an administrative expense. After about ten months of working under these conditions, Mayor La Guardia requested that such buying be taken back by the T.E.R.A. purchasing office itself, and this was done, the various welfare administrations continuing to purchase under the state contracts.

### Efficiency vs. Skullduggery

Incidentally the recent disclosures of irregularities in public printing purchases in New York are no reflection whatever on the City's Department of Purchase. The purchase orders thus far produced in evidence are T.E.R.A. orders, and so far as any culpability by public buyers is concerned, the fault lies partly in the laxity of the basic contract against which the orders were issued, and partly in a system which permits the expenditure of City funds on inspection and audit quite outside of the Department of Purchase. The inspection force, hastily recruited from the rolls of the unemployed and handling a wide variety of materials and supplies, was quite unqualified for the job, and the lump sum bills rendered to the City Comptroller's office were incapable of a strict audit. Even so, in an arbitration proceeding, the City recovered nearly a quarter million dollars of overcharges. Casual public opinion, which doesn't read beyond the headlines, and which blithely identifies any purchase with the duly constituted Department of Purchase without bothering to get the whole facts, will do well to follow this story with care, noting how and by whom the purchases were made. If it proves anything at all, it proves that *all* buying should be done in a competent centralized department with responsibility for negotiation, inspection and final acceptance. The leaks did not long persist under Department of Purchase buying.

But the story of New York City's printing purchases over the past five years is not primarily a sensational story of combatting a graft ring; it is a story of putting efficiency and purchasing science to work in a situation where loose methods prevailed and no central control existed.

### A More Flexible Contract

In 1934, the City's annual form printing contract consisted of a mimeographed document an inch and a half thick, detailing 1595 separate items, each in definite quantity estimated to represent a

FIGURE 2—TABLE OF FACTORS

Item	Type of Paper		
	Bond : All Grades Except Sulphite	Ledger : All Grades Except Sulphite	Bond & Ledger : Sulphites Only
Folding Endurance, %.....	25	30	25
Tearing Resistance, %.....	20	25	20
Bursting Strength, %.....	10	20	10
pH, % .....	5	5	5
Rosin, % .....	5	5	5
Ash, % .....	5	5	5
Brightness, % .....	..	..	20
Opacity, % .....	15	..	10
Appearance, % .....	15	10	10

year's requirements. For bidding purposes, this would have to be supplemented with a specimen of each item. The bid on each item had to be calculated according to the varying sizes, grades of paper, amount and character of composition and make-up. "Per sample" sufficed as a specification.

Aside from the clumsiness of this system, which discouraged bidding and practically precluded any intelligent analysis other than a price tabulation, item by item, it had many other shortcomings. The fixed amounts used as estimated requirements might be wide of the mark, resulting in costly reorders or outright waste. It was utterly inflexible. It did not provide for new requirements which might arise during the year, or for repeats involving a duplication of composition charges when they were later ordered. Such cases, and they were numerous, involved not only a great deal of additional work on the part of the purchasing staff, but what was often more serious, the delay of calling for new bids and making the award. (Contrasted with this is a recent experience. Facing the threat of a shortage in the water supply, the City decided to reach every possible family and enlist their aid in conserving water, by having each pupil in the schools take home a circular explaining the situation. This emergency, which could not have been foreseen, and in which time was of the essence, required 1,750,000 leaflets—quickly. Under the new contract, taking full advantage of previous negotiation and standing bids, and without the necessity of treating it as a special project, or waiting for quotations, the leaflets were ready in hours instead of weeks.)

One of the first steps toward improving the situation was a W.P.A. white collar project on the standardization of forms, carried on in conjunction with the Comptroller's

Department, the Department of Purchase, and the Department of Investigation. By consolidation of forms and standardizing sizes, the sheer bulk and confusion of the City's form requirements were greatly simplified. W.P.A.'s own estimate of the saving from this study and the resulting changes amounts to \$200,000. But this was only a start.

### The Paper Item

Very important improvements have been made in regard to the paper stock itself. The Board of Standardization has drawn up definite specifications for a limited number of types of paper sufficient to meet the whole range of requirements. This list includes four grades of bond papers: 100% rag, 50% rag, 25% rag, and 100% sulphite, with 13, 16, 20 and 24 pound weights in each grade; and three grades of ledger papers: 100% rag, 50% rag, and 100% sulphite, with 24, 28, 32 and 36 pound weights in each grade. The specifications set up requirements (Figure 1) as to opacity, brightness, pH value, maximum percentage of ash and rosin, bursting strength, folding endurance, and tearing resistance. Official testing methods of the T.A.P. P.I. are prescribed. Manufacturers' mill brands are required. Bid samples and certified test reports are called for. And since deliveries are now normally made to the central storehouse instead of direct to the user, these specifications are checked and really mean something.

A unique basis of adjustment has been worked out with the manufacturers for deliveries which fall short of meeting these standards. The various test factors have been weighted to indicate their relative importance in the three major classifications—rag content bond, rag content ledger, and sulphite bonds

*Continued on page 114*

# SAVE 93% DRYING TIME WITH NEAR INFRA-RED LAMPS

Drying time can now be calculated in minutes instead of hours, eliminating one of the bottle-necks of production

**W**HAT about these new drying lamps? That's what a purchasing agent friend of mine asked me the other day and I replied by asking the question—How do you want to use them?

The idea of using radiant heat from filament lamps for drying purposes is of fairly recent origin, consequently only a small number of fields have been explored. The greatest use of the lamps to date has been in the baking and curing of industrial finishes and here this method of drying has several advantages over conventional methods.

1. Lower equipment and installation cost
2. Greater speed
3. Cleaner and more comfortable working conditions
4. Adaptable to changing paint schedules
5. Greater flexibility of equipment
6. Elimination of warm-up period.

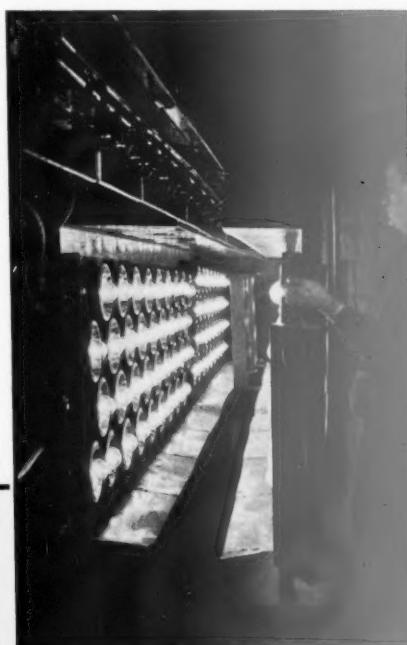
## Minutes Instead of Hours

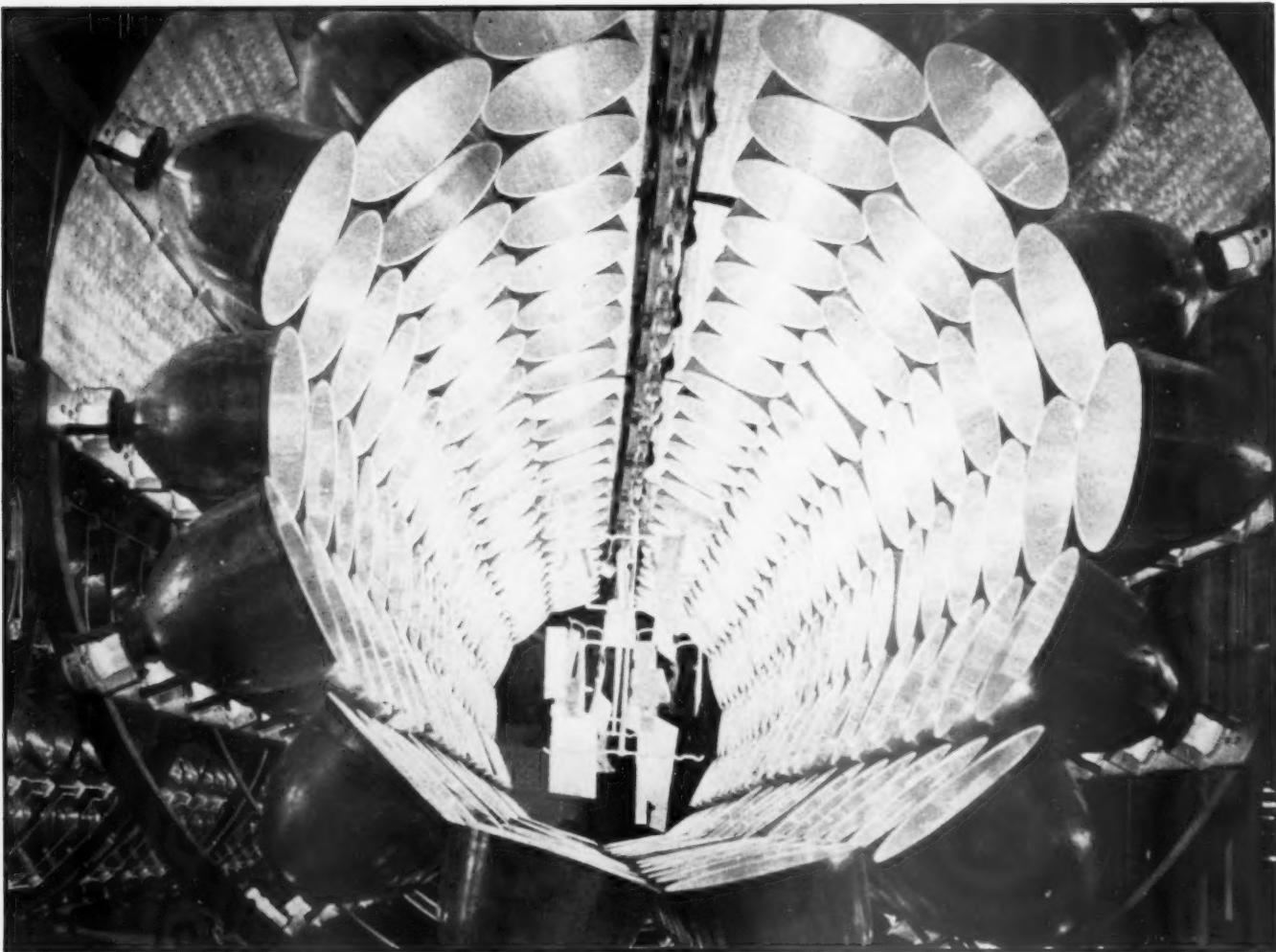
The first large scale use of near infra-red drying was made in the Ford plant at Dearborn for drying automobile bodies. (The Ford Motor Company has patents on the process and apparatus and they have licensed one or more equipment manufacturers to make and sell

By DEAN M. WARREN

General Electric Company  
Nela Park Engineering Department  
Cleveland, Ohio

**BELOW:** This bank of lamps dries a synthetic lacquer on flat stock in a minute and a half. **RIGHT:** At the Steel Storage File Company, Cleveland, this installation of 144 250-watt lamps in 9-inch gold plated reflectors dries filing cabinets in five minutes. Formerly, with air dry paint, the drying time was from two to four hours, depending on the weather.





This lamp tunnel at the National Cash Register Company plant bakes synthetic enamel in only 7% of the time formerly required.

equipment under these patents.) Prior to the installation of a lamp tunnel it required 30 minutes to dry the prime coat. It is reported that this is done in a drying lamp tunnel today in 7 minutes. The second coat formerly required 80 minutes and is now done in 14 minutes.

A synthetic enamel is now being baked on file cabinets by the Steel Storage File Company, Cleveland, in just 5 minutes whereas formerly an air dry finish was used and the time required to dry was 2 to 4 hours.

The National Cash Register Company, Dayton, Ohio, now bakes a high-bake synthetic enamel in 6½ minutes. Their old time, using the same paint, was 90 minutes.

The lamps are also being successfully used to dry synthetic enamel on ash trays and other small metal parts. The time is 8 minutes as compared with 50 minutes. They are also employed by an automobile repair concern who formerly used air dry synthetic enamel requiring 1½ hours to dry. The drying time is now 20 minutes.

#### Wide Range Available

The lamps for providing the near infra-red radiation are available in 250-, 500- and 1000-watt sizes. The 250-watt PS-30 bulb lamp and the 500- and 1000-

watt lamps are all designed for use in metal reflectors, usually of eight, nine, ten or twelve inch diameter. The reflectors are of parabolic contour in order to concentrate the infra-red energy on a definite area. They are finished either in gold, Alzak aluminum, or the equivalent. These reflectors redirect the radiant energy so thoroughly that there is practically no sensation of heat when a person is standing beside or behind them. This is true even when hundreds of lamps are operated in a group.

The 250-watt lamp is also available in a reflector type bulb. This lamp is processed inside with a mirror-like finish which redirects the radiant energy where desired and therefore no additional reflecting equipment is required. The source is relatively small in diameter, thereby permitting high concentration where it is desired for special applications. Where this lamp is used it is recommended that sockets capable of withstanding high temperature be employed and that reasonable ventilation be provided.

This method of radiant heating is so new that at present it is impossible to give a definite formula for every case. A trial installation conducted in the plant where conditions can be controlled and results tested is the best procedure.

In making such an installation don't overlook the fact that the concentration of radiant energy from a

few lamps and reflectors is much less than would be obtained under a large bank of lamps. Actually, with one type of reflector which is widely used today, only half of the energy at any given point comes from the units directly above; the remainder comes from surrounding units. For reasonable accuracy, therefore, the sample being tested should be fairly small, and it should be tested under a bank of seven units so mounted as to form a hexagon with the seventh unit in the center. Another way, of course, is to use a tunnel large enough to surround the article being tested.

### Design to Fit the Job

In actual installations the lamps are being used in several different arrangements. One design takes the form of a cylindrical tunnel. The cylindrical shape allows the energy from more reflectors to be directed on the work, thus giving a higher density of radiant energy. The tunnel design is being employed for drying finishes on automobile bodies, wheels, etc., and for drying touch-up enamel on refrigerators.

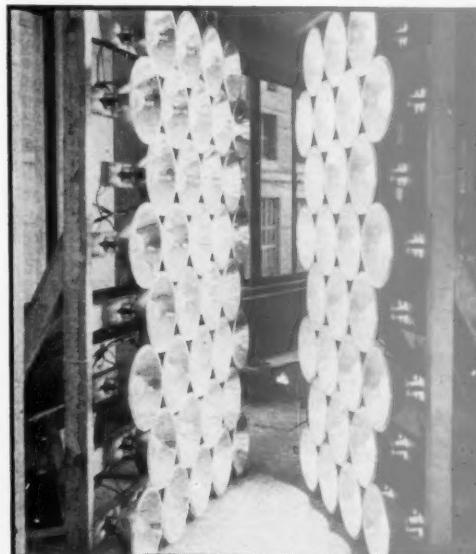
The length of the tunnel is dependent on several factors. For example, a refrigerator cabinet approximately 6' x 2' x 3' would travel through a tunnel of reflectors with an opening approximately 7½ x 4 feet. If 12-inch reflectors and 250-watt lamps have been found best suited for the temperatures involved, the tunnel would contain 19 reflectors around the opening and have a length in feet equal to the product of the speed, in feet per minute, of the conveyor, and the

minutes of drying time required. Thus if the conveyor is moving at 4 feet per minute and 10 minutes are required for drying, the reflector bank will be 40 feet long and will contain 760 reflectors with 250 watt lamps in each reflector.

Another method is to use the lamps in flat banks, either vertical or horizontal and pass the material to be dried over the lamps. This method can be used for flat work such as paper, wood and steel panels, etc. In some instances it is feasible to place a bank of units on both sides of the work, thus cutting the time and space required.

A third way of using the lamps, and one which is of particular advantage where the part to be dried is heavy or where only a section has to be dried, is a portable unit. This type of installation is being employed in automobile factories and garages for touch-up work.

The new drying lamps provide a simple yet effective method of drying. Heat control is positive, flexible and requires no warm-up period. In many operations their use should result in lower operating costs.



Used in a large office building, this installation is employed to dry doors which are refinished between the time the office occupant leaves at night and before he returns in the morning.



This installation employs 216 250-watt PS-30 bulbs to bake synthetic enamel on sheet steel parts. The time required is six minutes.

# **THE CONVENTION PROGRAM**



**Cincinnati is Ready  
for N. A. P. A.'s  
Silver Anniversary Meeting  
June 3, 4, 5, 6, 1940**

## **Plant Visits**

Cincinnati, nationally known as a center of the machine tool industry, is also a city of highly diversified manufacturing interests. Tuesday and Wednesday afternoons have been set aside to give visiting buyers an opportunity to go through the following plants, which will hold open house for the convention:

American Tool Works  
Andrews Steel Company  
Philip Carey Company  
Cincinnati Bickford Tool Company  
Cincinnati Gas & Electric Company  
Cincinnati Milling Machine Company  
Cincinnati Shaper Company  
Crosley Radio Corporation  
Formica Insulation Company  
R. K. LeBlond Machine Tool Company  
Lodge & Shipley Machine Tool Company  
Lunkenheimer Company  
Newport Rolling Mill  
William Powell Company  
Procter & Gamble Company

## **Some Outstanding Speakers**

Charles R. Hook, President, The American Rolling Mill Co.  
Dr. J. Anton de Haas, William Ziegler Professor of International Relationships, Harvard University.  
Hon. Louis Johnson, Assistant Secretary of War.  
Dr. Ernest Minor Patterson, President, American Academy of Political and Social Science.  
W. J. Williamson, General Traffic Manager, Sears, Roebuck & Co.  
Herbert N. McGill, President, McGill Commodity Service.  
Dr. M. A. Brumbaugh, Bureau of Business and Social Research, University of Buffalo.





## A Practical Program for Purchasing Men

### "Charting Our Purchasing Course"

#### MONDAY, JUNE 3 WHERE ARE WE?

Where Is American Business and How Did It Get There? . . . The International War for Control of Materials . . . Today's Purchasing Problems in Canada . . . Report of Business Survey Committee . . . The Current Situation in Coal, Fuel Oil, Lumber, Steel, Non-ferrous Metals, Textiles, Paper, Industrial Chemicals.

#### TUESDAY, JUNE 4 WHERE ARE WE GOING?

IF WAR COMES . . . The U. S. Industrial Mobilization Plan for War . . . How It Affects Purchasing.  
IF PEACE COMES . . . Will Unemployment, the Unbalanced Budget and Buried Gold Affect Commodity Prices? . . . Interstate Barriers.

#### WEDNESDAY, JUNE 5 HOW CAN WE GET THERE SAFELY?

Keeping Mobile in the Days Ahead . . . Building Purchasing Personnel . . . Utilizing Transportation Facilities to Lower Costs . . . Simplified Specifications.

#### THURSDAY, JUNE 6 CHECKING OUR COMPASS

Charting Your Course on Commodities . . . Business Forecasting . . . The Haney P/V Curve Explained So We Can Understand It . . . From One P. A. to Another.

## Prominent Purchasing Men Will Take Part

J. M. Alexander, Cavalier Corp., Chattanooga  
W. E. Bittner, Diamond Alkali Co., Pittsburgh  
H. L. Brueggemann, Acme Steel Co., Chicago  
F. H. Carter, Maryland Drydock Co., Baltimore  
G. H. Cole, Alabama Power Co., Birmingham  
F. A. Compton, The Detroit Edison Co.  
J. K. Conant, General Printing Ink Corp., New York  
W. B. Cummings, New England Confectionery Co., Cambridge  
Herbert DeStaebler, Lambert Pharmacal Co., St. Louis  
M. L. Draper, E. I. du Pont de Nemours & Co., Wilmington  
Henry George, General Motors Corp., Detroit  
R. C. Haberkern, R. J. Reynolds Tobacco Co., Winston-Salem  
T. W. Harris, Jr., E. I. du Pont de Nemours & Co., Wil-  
mington.  
F. J. Heaslip, Fairbanks Morse & Co., Chicago  
C. G. Holloway, Isaacson Iron Works, Seattle

T. D. Jolly, Aluminum Co. of America, Pittsburgh  
H. E. Kaiser, Phillips Petroleum Co., Bartlesville  
J. R. Keach, Ohio Rubber Co., Willoughby  
R. C. Kelley, Converse Rubber Co., Malden, Mass.  
H. K. LaRowe, Dairymen's League Coop. Assn., New York  
James MacPherson, Standard Oil Co. of Calif., San Francisco  
C. R. McNeil, Fuller Brush Co., Ltd., Hamilton, Canada  
M. W. Merrill, U. S. Metals Refining Co., Carteret, N. J.  
J. P. Sanger, U. S. Gypsum Co., Chicago  
R. C. Swanton, Winchester Repeating Arms Co., New Haven  
W. R. Swartz, Texas Gulf Sulphur Co., Newgulf, Texas  
I. E. Walton, Heppenstall Co., Pittsburgh  
S. E. Webster, Dominion Textile Co., Montreal  
R. W. Weeks, Loose Wiles Biscuit Co., Minneapolis  
F. W. Woodrich, Jr., Kendall Refining Co., Bradford  
A. R. Woodman, Nestle's Milk Products, Inc., San Francisco

# Silhouette STUDIES



**MICHAEL J. MORIARTY**, Director of Purchases for the U. S. Playing Card Co., is acclaimed by his fellow buyers as the man whose enthusiasm, energy, and capacity for prompt and effective action were chiefly responsible for the formation of the Cincinnati Association which will be host to the N.A.P.A. at

the Silver Anniversary Convention next month. It happened in 1920, when "Mike" was practically a newcomer in purchasing work. On a business trip to New York, he was casually invited to a meeting of the youthful New York Association and was greatly impressed. He wanted a chapter in Cincinnati. Informed that one previous effort had met with complete indifference, he guaranteed to produce a representative turnout of Cincinnati buyers whenever the national officers could arrange to be in his city, and three months later made good on that promise with a meeting of thirty-five purchasing men. That selfsame evening, on his personal motion, the Cincinnati Association was born.

Characteristically he gives a large share of credit to his co-workers of the early days, for it was no one-man job. But he takes a sincere and well merited pride in the part he played in that important development, and has given evidence of his devotion in an exceptional record of attendance, innumerable committee assignments carried through to success, a dozen years on the Board of Directors, a year as president, and three years as secretary of the Sixth District Council. He has given up other fraternal affiliations, but C.A.P.A. continues to rank as one of his chief interests. Along with golf and bowling, it's also his recreation. He's back in harness this year, in charge of registration for what promises to be N.A.P.A.'s biggest convention.

Mike was born in Ireland 56 years ago, near the famous Lakes of Killarney, the youngest of eight children. He came to this country in his early teens, settling first in Indianapolis, where he got a job with the National Card Co., and coming to Cincinnati in 1900 when the company was merged with its parent organization, U. S. Playing Card Co. An eager student, he has spent a good many of his evenings at school, completing his high school courses and going on to study foremanship, purchasing, advertising, sales, accounting, public speaking and business administration. At various times he has attended classes at the Business Training Corp., Y.M.C.A., St. Xavier's, and the University of Cincinnati.

He started purchasing in 1918, as a sideline to manufacturing and clerical duties. Within two years he had achieved such excellent results that he was told to devote his entire attention to purchasing, and for the past twenty years he has headed the department.

He is well known for his gift of expression in verse. His two favorite topics reflect his two deep loyalties. Many phases of buying have been the subject of his rhymes and have had wide circulation among purchasing men. For fifteen years his original St. Patrick's Day verses have been a feature at the banquets of the Irish Fellowship Club. To quote a recent N.A.P.A. bulletin, the phrase, "gentleman, poet and scholar," was coined to fit Mike.



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**KARL L. BATES**, who is this month completing his term as president of the Washington Purchasing Agents' Association, is a student of business and buying, whose appreciation of educational advantages is all the deeper because he has had to get his own formal schooling the hard way, sustained by his own innate ambition and the inspiration of a sympathetic teacher. As a youngster in his teens, he had a 3-mile trek to attend high school in Olympia while carrying on a man's work at the family's dairy ranch. He completed his course at the Ballard High School, Seattle, in 1913, ranking second in his class, and graduated from the Acme Business College the following year. While getting his business start as a tariff clerk with the C. M. St. P. & P. Railroad, he found time to attend the Law School of the University of Washington.

During the World War, his railroad experience was put to good use as a "car chaser" expediting shipments of construction material for a sawmill of the Spruce Division at Toledo, Ore. He has been continuously associated with the lumber industry ever since.

His buying experience dates from 1920, when he started purchasing supplies for commissary, mill and logging operations for the Cabin Creek Lumber Co. at Easton, Washington, in the heart of the Cascade Range, a situation chosen partly for reasons of health. There he and Mrs. Bates planned and saved toward the fulfillment of a long cherished ambition, and presently they came east, where Karl enrolled in the New York University School of Commerce, studying advanced statistics under Dr. Lewis H. Haney, and attended the first college course in purchasing, under George Heilmann of the Otis Elevator Co. When funds

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ran low, he got a job with Ichabod T. Williams & Sons, carrying on his university courses via the night school and summer school route. He graduated with high honors in 1924, and was elected to Beta Gamma Sigma honorary society. He has also completed the courses in higher accountancy and business management with the La Salle Extension University.

Returning to the northwest, he did accounting and cost work with the Carlsborg Lumber and Timber Co., Nettleton Lumber Co., and A. J. Krauss Lumber Co. In 1927 he came with Matthews Hardwoods, Inc., Seattle, worked up through the purchasing department to general executive responsibilities, and has recently been appointed manager of that organization, another in the long list of Association leaders who have gone on to the top in their respective companies.

He joined the Washington Association a little over five years ago, and has missed few meetings in that time. Enthusiastically interested in the Association program, his abilities were rapidly recognized and put to work. His leadership has been sound, emphasizing the educational aspect. It has been effective because of his sincere faith in the broad opportunities of purchasing as a factor in management, and because his own experience quietly demonstrates that most goals are attainable, however difficult, by setting an objective and hewing to the line.



**CLARENCE H. KISSEL**, Purchasing Agent for Goulds Pumps, Inc., at Seneca Falls, N. Y., has been buying for twenty-seven years, starting with the Ames Iron Works at Oswego in 1912, when he left Oswego Normal School and abandoned an earlier ambition to become a teacher. He joined the Goulds

organization in 1917 as Assistant Purchasing Agent and has been there ever since, with the exception of a six-months intermission for Army service during the World War days. Since 1926, he has headed the purchasing department.

He's a man of many interests, which he takes in stride and with a quiet philosophy that affords him an unusual degree of personal satisfaction, rather than

indulging in a whirl of "activities" for their own sake. He gave up golf after a conscientious trial of the game, because it didn't fit into that scheme.

At the head of the list is his family, a lively group with three youngsters ranging from nine to nineteen, and the spacious, comfortable home where Clarence personally does a grand job among his flowers.

Hobby of longest standing, and an enduring source of pleasure, is his music. At the age of thirteen, already an accomplished pianist, he studied organ with Charles M. Courboin and soon became the regular organist of the Oswego Lutheran Church. A feature story in the *Utica Globe* cited him as the youngest organist in New York State. For twenty-three years, in Oswego and Seneca Falls, he continued at this avocation, retiring from regular duty about seven years ago, though he still pedals a stirring diapason on occasion.

He manages to get in at least one fishing trip a year, thoroughly enjoys a mild game of poker, and tells a story uncommonly well. Sociable and cooperative by nature, but not a "joiner", his organization memberships are limited in scope to those which have a definite personal appeal and limited in number to the extent that he can take a real part in the work—the American Legion, the Elks, the Presbyterian Church, and the Purchasing Agents Association. With the typical business man's viewpoint, he takes considerable pride in the fact that all four are healthily solvent.

Mr. Kissel was present at the charter organization meeting of the Purchasing Agents Association of Syracuse and Central New York in 1918, but did not join until 1927. Since then he has been a regular attendant despite the eighty-mile round trip drive, and has done yeoman service in committee work and various official positions. Right now he is completing a highly successful term as president of the association. The Cincinnati convention in June will be his tenth national gathering, a highly creditable record for thirteen years of membership. Statistically-minded, he has kept brief personal minutes of every meeting, convention session, plant visit, and outing over that period, and figures that he has travelled 24,434 miles in attending Purchasing Agents' affairs.

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*"I'm afraid they can't see you right away, Mr. Biggs;  
they're in conference."*

# THE A B C OF BUYING BUILDINGS

By A. KINGSLEY FERGUSON

The H. K. Ferguson Company, Engineers and Builders

**C**ONSUMER education is one of the most significant recent developments in the art of marketing. In times past the sale of most products was largely controlled by the price factor. Thanks to effective advertising, good publicity, and consumer research, a new and proper appreciation of better quality has spread throughout the buying public. Better informed consumers are actually paying cold hard cash for the extra cost often required to produce superior merchandise.

Unfortunately, this consumer education appears to have stopped short of the construction industry. For some unknown reason the average building buyer suffers from the delusion that a magical method exists by which he can buy better buildings cheaper than anyone else. The uneducated buyer will often purchase his

This new Maxwell House and Sanka Coffee plant of General Foods Corporation, Hoboken, N. J., illustrates the use of different types of factory buildings in a single plant. The warehouse and storage areas are single story, monitor types, with steel framing. The manufacturing areas and laboratory are multi-story, reinforced. The simplicity of this design proves that costly ornamentation is not necessary to good appearance.

The wise purchase of construction work brings continuing savings in investment, maintenance and operating efficiency.

building at the lowest figure he is shown, generally without considering any other factors, except the one of price. If the result is unsatisfactory, as is too often the case, it is likely to reflect discredit on the entire building industry.

This oft recurring tragedy could be avoided if the buyer understood and frankly recognized some of the fundamental problems and processes involved in the design and construction of buildings. The purpose of this article is to emphasize some of these fundamental factors which will create a better appreciation of engineering and construction problems and to point out a few simple rules for avoiding trouble.

First of all, the buyer should frankly recognize that the construction industry differs basically from any other type of manufacturing industry. No other industry operates with as many variable factors of cost—variables which change so rapidly and radically in so



short a time that it is impossible to estimate an exact cost for any given building. Where practically all other manufacturers can eliminate the hazard of weather as a cost factor, by operating inside of buildings, a large part of all construction work must be done in the open, subject to all the whims of Mother Nature. Labor rates change rapidly without notice, obviously affecting ultimate costs. The quality or quantity of skilled labor available at any given time, may change over night, and this change may produce a marked effect on the cost of operations requiring special skills. The material markets from which the buyer must purchase the innumerable items which go into the structure, are constantly fluctuating, creating cost hazards more dangerous than those of any other industry. These hazards the builder must assume, and since he is dealing in large sums of money, the penalty may be serious.

*It is a fundamental truth, then, that there is no such thing as a definite building cost for the contractor until the structure is complete.*

The builder's experience and his ability to minimize or eliminate the hazards from the building operation are the best guarantees of a low final cost.

The only true formula for low cost of a building, assuming proper design, is: "Materials wisely purchased, plus skilled labor efficiently administered, equals minimum building cost." When this formula is the basis of any building program, the result will be a maximum return for the money spent. A frank recognition of this fact has caused many of this nation's leading manufacturers, who are repeat builders, to entrust all of their construction work to one exceptionally competent firm on a strictly lump sum fee basis.

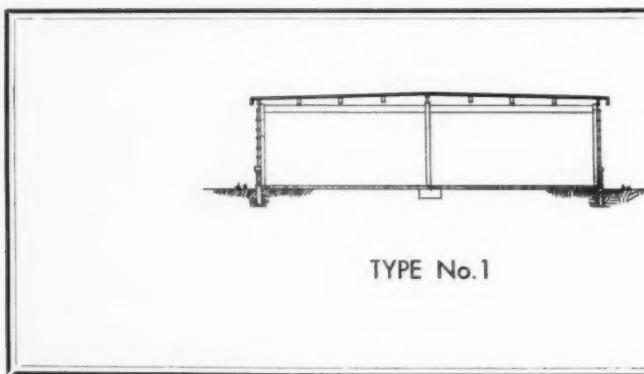
### SINGLE STORY BUILDINGS

**TYPE NO. 1** is representative of the most economical kind of design. Generally used for warehousing or storage, although it is suitable for some types of light manufacturing.

**TYPE NO. 2** embodies the economical use of beam and column construction in the side aisles. Center aisle may be designed for a crane of any capacity. By varying the height of the center aisle, the building can readily be adapted to foundry use or other processes requiring elimination of smoke or fumes.

**TYPE NO. 3** features wide spans between columns, giving larger areas of unobstructed floor space. Spans up to 60 feet are common and permit an economical use of steel in truss type fabrication. This type of building is adaptable to almost any kind of manufacturing service.

**TYPE NO. 4—Sawtooth buildings** have been used for many years, especially where they face the north, which gives the advantage of even day lighting from this direction. A chief objection is the lack of ventilating qualities, a factor which can now be eliminated by air conditioning or by special ventilating devices.



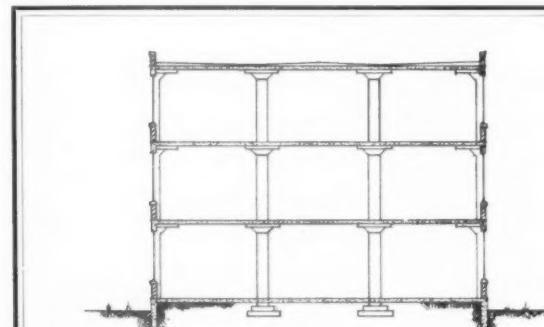
TYPE No.1

It is not to be understood that all work should be on a fee basis. Lump sum work is desirable because it is a means of protecting the owner from the penalty of the hazards besetting his work. But in most instances he pays for this protection. For example, we have had twenty-three separate competitive lump sum contracts from one nationally known manufacturer.

The average net profit on these jobs was considerably more than our estimated fee. This owner has recently shifted to a form of fee contract on a substantially reduced percentage of profit to us, which will represent a worthwhile saving to him. In one sense of the word, this saving is the owner's compensation for assuming the hazards besetting the builder's operations.

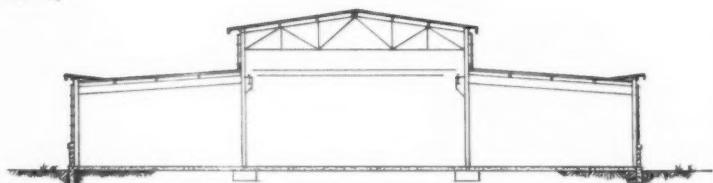
Another recent case at point was that of a well known manufacturer who solicited bids for a new branch plant. We were awarded the work from the Director of Purchases, on the owner's plans and specifications, after competing with a local builder, and two others. The Director of Purchases expressed sympathy by saying that there was probably little profit in the work for us. On the strength of our estimate, he appeared to be quite right. At the close of the job, however, we had been able to develop a net profit, which was considerably more than we had asked as a fee. On two small items—beam hangers and post caps—(the building was wood frame) we were able to redesign better connecting devices at a saving of \$1700.00.

**RULE ONE** for the Building Buyer: *Employ designing and building talent well qualified by experience to handle your particular building problem.* Don't expect a factory builder to do a good skyscraper job, and be especially suspicious if he is the low bidder. Don't expect a house builder to construct a good office building. It is like asking a criminal lawyer to handle a Labor Board case as expertly as the labor lawyer would do it.



CONCRETE FRAME

MULTI-STORY



TYPE No.2

SINGLE STORY

The real value to an owner in any industrial expansion exists long before a draftsman puts his pencil to a tracing sheet. The proper design of industrial structures is determined by the layout, nature and size of the equipment, and the function for which the building is intended. The initial study and planning for proper layout of process equipment in any industrial plant, is the least expensive and the most valuable part of any expansion program. The result of this study is vastly more significant to the owner than any amount of study devoted simply to building detail.

It is important to remember that industrial buildings are only necessary evils to protect plant operations from the elements. Buildings of themselves do not work for an owner like men and machines, nor do they make money. It is vital, however, that they be located and designed to insure an easy economical flow of materials through the plant, with minimum handling. They should be heated, lighted, and equipped to insure maximum quantity and quality of production.

Most industrial builders have become familiar with layout and equipment problems. In the absence of an owner's engineering department, these specialists can frequently be of great value to an owner by bringing an experienced outside viewpoint to bear upon the owner's building problem. Owners frequently ignore the possibilities inherent in many building programs. Opportunities often exist for a buyer to find the goose that lays the golden egg, especially if he insists that the layout be defined before the building design is actually started.

A typical illustration recently brought to our attention was the case of a small mid-western manufacturer. He wanted "the cheapest 100,000 square feet we could build," to relieve a congested condition in his plant. Sensing some of the potentialities of the situation, we persuaded him to let us make a layout analysis of his

plant at our own expense. Very soon we were able to demonstrate that a combination of new equipment and only 45,000 square feet of added floor space would accomplish his purpose. This combination required less initial capital and in addition it produced an operating saving of \$50,000 annually. Like many other plant men, he was so absorbed in operating problems that he had been unable to devote adequate time and thought to his plant expansion.

**RULE TWO**—it now follows that Rule Two for the Building Buyer should be: *Define your expansion problem correctly before any buildings are designed, and capitalize on all possibilities for operating savings through better layout.* This study should be carried out either by your own organization, or with the help of qualified outside talent. After this preliminary work has been done, you are ready to begin the actual design. It is assumed that you have already followed Rule One, and have called in the most experienced talent available to you.

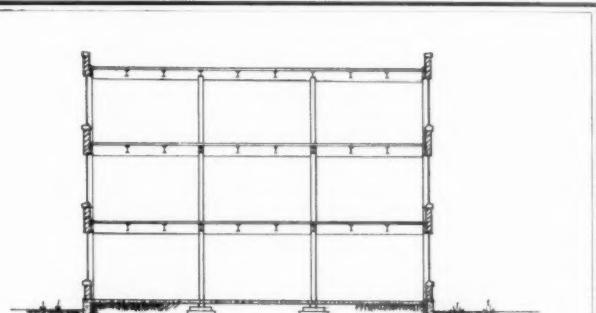
There are two good methods available for purchasing industrial designs. There is the old time tested method of hiring an architect, who prepares complete plans and specifications for the building in question. He then submits this information to general contractors for bids and presumably awards the work to the lowest qualified bidder. The design work is done either for a fixed fee or a percentage of the building cost. Some industrial architects will award contracts to subcontractors covering the entire work, all under the owner's name, and then supervise the operations in the field.

The other method involves specialized industrial engineering and building firms who handle both the design and construction work, under one contract, and

## MULTI-STORY BUILDINGS

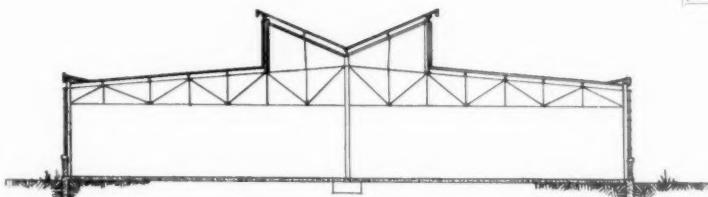
**CONCRETE FRAME MULTI-STORY**—This type of building can be designed for heavy floor loadings, and is popular where fireproof construction is desirable and where heavy storage, or operating equipment must be located on upper floors. Concrete construction eliminates ledges and corners, which are dust collectors. These buildings are easy to keep clean, thus making them desirable for food processing and other types of manufacturing where cleanliness is important.

**STEEL FRAME MULTI-STORY**—This kind of multi-story construction is used when floor loadings are less than 200 pounds per square foot, and it usually costs less than reinforced concrete. Wood floors may be used to effect further cost economies, but the use of wood floors increases the fire hazard, with resulting increase in insurance costs.



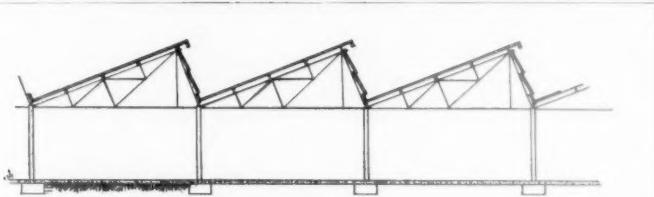
STEEL FRAME

### BUILDINGS



TYPE No.3

### BUILDINGS



TYPE No.4



Saving money on roofs is poor economy. At the Star Box and Printing Company, Chattanooga, Tenn., this tar and gravel roof on the more level areas, and the 20-year composition roofing on the relatively steep slopes of the monitors, are both bonded for twenty years, which protects the owner against trouble.



Large unobstructed areas of floor space of this type, as at the Addressograph-Multigraph Corporation, Euclid, Cleveland, Ohio, are more expensive because of the increased weight required in the steel framing to effect the clear roof spans. Wood block flooring is used throughout this plant.

with one responsibility for both functions. For the average industrial building these firms will submit, without charge, sales sketches and outline specifications, showing all of the important features of the structure. They will then quote a guaranteed price for the building. If the proposal is accepted, they will complete working details and specifications for the structure and then build it.

Those who recommend the use of a purely architectural firm, claim that the preparation of a set of completely detailed plans and specifications, for competitive bidding, enables an owner to buy the new building at the lowest possible price. Also, the architect will insist that because designing and building are separate functions, one organization cannot be expert in both.

On the other hand, the industrial engineer and builder denies this point, and maintains that the designing and building functions are integrally related. Furthermore, because an architect is not as familiar with building costs as the contractor, he cannot and will not guarantee to any owner the cost of a project until the expense of the designing is already incurred. He further points out that there can be a definite saving in the time required to complete the building, because field work can start before all details of the plans are completed. He claims that the saving of time is especially important in industrial construction, and that the earlier use of the building will more than offset any possible differential in price between two competent competitive bidders.

There is no question, however, that the services of the architect are indispensable in certain fields of construction, especially where the esthetic value is important, as in monumental and residential building.

The buyer should understand that both designing and estimating the cost of a structure are processes which require considerable time to complete. Designs, even though they may be the so-called standard type of building, are not an over-night proposition. To prepare an estimate for a bid requires great

skill, care, plenty of effort, and good arithmetic. Building estimates are not taken from printed price sheets and transferred to a bidding blank. The quantity of material and the labor costs of every item must be carefully computed and totaled. With hundreds of items and possibly thirty or more skilled trades represented in the work, the assembling of an estimate is no simple physical or mental task. Approximate figures can be prepared over night, but never accurate ones. Our own rule on rush figures is to be safe rather than sorry.

Too often expansions are conceived and executed during rush periods of business, when executives are too busy to give proper attention to the matter. High speed operation of the plant is the paramount issue, and the whole theme of the expansion program is—RUSH. As in other matters, haste may make waste.

RULE THREE for the Building Buyer is: *Allow adequate time, whenever possible, for the preparation of plans, specifications, estimates and bids, if the best possible result is expected.*

Whenever a purchasing agent requires competition on a job, he should be extremely careful to select only bidders with a successful background of experience and training in the work at hand. No good contractor asks anything more than that his competition be properly qualified for the work. It is often wise to limit competition to a few competent firms. Reputable firms often shy clear of quoting on work in competition with ten or twenty others.

## **FOUR RULES for the Purchaser of Construction Work**

- 1. Employ designing and building talent qualified by experience to handle your particular building problem.**
- 2. Define your expansion problem before designing the buildings, and capitalize all opportunities for better layout and operating economies.**
- 3. Allow adequate time for planning and estimating to get the best possible results.**
- 4. On competitive work, hear each bidder and enlist their suggestions.**

This attitude is not taken because the builder is unwilling to enter into competition. Competitive bidding is vital to the life of any contractor, as it not only keeps him up to date on his markets, but it is a driving force to better and more efficient methods of building operation. However, when there are a large number of bidders, it almost invariably happens that mistakes in estimating will be made by someone, especially if there are bidders not well qualified by experience to estimate the work in question. In consequence, the submission of an erroneous figure by unqualified competition, is likely to put the legitimate bidders in an unfair light.

At times, some of these mistakes which escape the attention of the owner are almost unbelievable. In one competition in which we participated several years ago, the work was awarded to a very low bidder. Both he and the owner later discovered that the entire structural steel item (some \$80,000.) had been omitted from the bid. Because the work had already started, it was too late to award the job to a legitimate bidder. The contractor was financially unable to make good his mistake, and the owner ultimately paid a premium of several thousand dollars for the work.

Our own rule is to avoid bidding as far as possible, on any work where there are more than five competent bidders. Similarly, we do not like to quote any work where we are denied the privilege of a "show-down," which is simply an opportunity to discuss our proposal with the owner, point by point. Only thus can we develop a true comparison of our price and quality with the proposals of competitors. Only by this means can we be fair with our customers, our competition, and ourselves. Many times it is possible in such a hearing to bring the owner's attention to market bargains, or minor changes in design, which are sometimes better and cheaper than those specified. The factors controlling the quality of a building are so numerous that the buyer should take great pains to insure himself, item by item, exactly what he is buying.

Depending upon the size of the work, it costs from \$50.00 to \$1000.00 to prepare a good proposal. It would seem only just that bidders be given a fair hearing.

It is worthwhile, then, to observe RULE FOUR, which is: *On competitive work, plan to spend plenty of time hearing your bidders and enlisting their suggestions.*

It is impossible to review all details of the design and construction of new buildings, which should be considered in making a good purchase. It is interesting to note, however, that the vast majority of designs for industrial plant space can be grouped into about a half dozen good basic designs. Almost all of existing factory floor space consists of variations of these basic, or so-called standard types, illustrated in the accompanying sketches.

In general, however, there are two points in factory construction where economy is poor policy. Money saved on floors and roofs is likely to be expensive in the long run, and are precisely the wrong spots in which to try to economize.

Concrete floors and their wearing surfaces have long been bugaboos for maintenance men. A concrete floor, once it has started to disintegrate, will be a very expensive headache. In the last decade a great deal of careful research has been devoted to the design and control of concrete mixtures. Exact techniques for producing durable concrete have been developed, and it is now possible to eliminate most of the hazards formerly associated with concrete work. It should be noted that this is a technique requiring some skill, and not simply a matter of mixing sand, gravel, cement and water, according to a written formula. The proportions of the concrete ingredients, the technique of mixing, pouring, screeding, and finishing, are all elements which combine to produce a good or a bad industrial floor.

The wearing surface of an industrial concrete floor is important wherever the floor is subjected to any kind of trucking, or service other than foot traffic. A wearing surface of iron filings or silica hardener will protect the floor from wearing down and dusting. Edges exposed to trucking should be suitably armored by curb angles. The smooth surface of a good concrete floor, once broken, will disintegrate rapidly under continuous traffic. Once the floor starts to go, only complete replacement of the damaged panel will generally repair the condition satisfactorily. This cost may prove to be many times the initial cost of surface protection. For very heavy duty use, wood block is still the leading floor surface material. Its durability under hard usage is superior to any kind of floor currently available.

Money spent for extra quality in roof construction is money well spent. Manufacturers' specifications are reliable and should be followed to the letter. Special attention should be given to flashings and edgings, and these should be of the best quality material obtainable. Exposed parapet walls which project above the roof line, are a potential source of trouble, unless the inside surface is properly flashed and waterproofed to prevent seepage and absorption of moisture through the walls.

The question of bonded, versus unbonded roofs, is an argument that has never been settled. It is safe to say that if the owner eliminated the cost of the bond and spent that amount of money on maintenance at regular intervals, he would get more life out of his roof than he will by simply buying a printed bond. The difficulty lies in the fact that "maintaining a roof" usually means fixing it after it leaks. Consequently, we recommend and prefer that the owner purchase a bonded roof which simplifies proper and expert repairs if and when trouble appears.

We are often asked the relative cost of various types  
*Continued on page 118*

# WHAT HAS HAPPENED TO THE STRATEGIC MATERIALS?

## Part II

By HAROLD A. KNIGHT

Metals Editor

New York Journal of Commerce

**I**N a previous article eight of the original seventeen strategic materials, as so designated by the Army and Navy Munitions Board, were discussed as to their price movements since the war started, the supplies in this country and those reasonably available outside. There remain nine such commodities still to be placed in the test tube and studied.

The picture, however, changes rapidly. The Munitions Board has by now removed three of those materials from the "strategic" list and reclassified them on second or the "critical materials" list—aluminum, because of the tremendous supply of bauxite in Arkansas; optical glass, because the American product is now better in many instances than the imported; and wool because substitutes and large supplies are being found in this country.

There are now fourteen strategic materials listed and fifteen critical. The Board describes strategic materials as "those essential to the national defense for the supply of which in war dependence must be placed in whole, or part, on sources outside the continental limits of the United States, and for which strict conservation and distribution control measures will be necessary."

Critical materials are "Those essential to the national defense, the procurement problems of which in war, while difficult, are less serious than those of strategic materials because they can be either domestically produced or obtained in more adequate quantities or have a lesser degree of essentiality, and for which some degree of conservation and distribution control will be necessary."

Discussed in the previous article were antimony, manganese, quicksilver, tin, wool, manila fibre, rubber and silk. We will proceed where we left off and treat of the other nine, even where they have by now been removed from the strategic list.

Ten of the original strategic materials were metals or minerals. Market price movements have been by no means uniform. Thus prices of tin and aluminum were actually lower after eight months of the war than at the start. None of these materials have experienced runaway markets for more than a few days near the start of the war. The price of manganese ore has nearly doubled, but the price appreciation in most items has been moderate—say 15 to 20%. A few, such as quartz crystal, have remained unchanged in price throughout these eight months.



Our matchless steel production capacity would be crippled without supplies of manganese, nickel, chromium and tungsten, vital items on the list of strategic materials.

There seems to be fair agreement among authorities that supplies should be enough for six months' to a full year's consumption, though in several cases supplies may be considerably less.

Provisions for the hoarding of strategic raw materials carry with them the supplemental purpose of exploring for more of these strategic minerals within the United States. Charles F. Jackson, chief engineer of the Mining Division of the Bureau of Mines writes: "There was little expectation that important new deposits would be discovered in the United States as a result of the Strategic Minerals Investigations, because most ore deposits in this country have probably been noticed at some time by prospectors. The objective of the investigations is, therefore, a careful consideration of such deposits as are believed by some one who sponsors them to contain substantial amounts of one or more of the strategic metals. Search by the metals by primary prospecting is not undertaken but extensions of known ore bodies are sought and some of these have already been shown in a fairly satisfactory manner."

"All samples taken by engineers of the Strategic Minerals Investigations are sent to metallurgical laboratories of the Bureau of Mines for analysis and for testing to ascertain the most suitable process for their utilization. Usually the requirements are for well-known and well-established processes, but several special investigations have been made the subject of research along somewhat unusual lines. Research of this kind is necessarily slow and no conclusive results in regard to new processes have yet been reached."

In the previous article on this subject, comment was made of the concern in some quarters lest Japan seize the Dutch East Indies and thereby cut off certain materials from the United States. Shortly after the article was published concern over such action occupied many headlines in the newspapers. Rubber, tin and quinine are among these materials which would be affected by such a coup.

This again indicates how ever changing and relatively insecure are all world conditions today and argues for the actual hoarding of things we need.

### **Quinine**

When the Germans invaded Norway they presumably had no quinine on board the transports as part of their military equipment. Quite the contrary when the Italians invaded Ethiopia. In other words quinine is used to arm troops against malaria when they invade tropical climates.

Should the United States be drawn into hostilities a large complement of our armed forces would be drawn into the Panama Canal Zone where the deadly malaria bugs would be allied with the hostile forces. In fact one does not have to go as far South as the Canal Zone. A large part of the population of the United States, particularly in the South, suffers from the disease. A good supply in this country is needed for civilians as well as the military.

The medicine is made from cinchona bark, is imported principally from Java through the Dutch interests in the Netherlands. The trick in manufacture is to convert the refined bark into a soluble salt, usually quinine sulphate. There is a substitute of a sort, atabrine, but in the case of drugs and medicines the emergency is usually so vital that a substitute is usually indicated only when the prime item is unobtainable.

One of the large manufacturers of quinine tells us that he believes our Government branches have substantial amounts on hand for emergency use. Certain high grade brands are comparatively stable under proper storage conditions and hence it is

### **STRATEGIC MATERIALS**

Antimony  
Chromium  
Coconut Shell Char  
Mananese  
Manila Fibre  
Mica  
Nickel  
Quartz Crystals  
Quicksilver  
Quinine  
Rubber  
Silk  
Tin  
Tungsten

### **CRITICAL MATERIALS**

\*Aluminum  
Asbestos  
Cork  
Graphite  
Hides  
Iodine  
Kapok  
Opium  
\*Optical Glass  
Phenol  
Platinum  
Tanning Materials  
Toluol  
Vanadium  
\*Wool

\*Transferred from Strategic Materials list.

prudent enough to hoard it for some use fairly far in the future.

Prices have risen so slightly since the war started as to hardly be worthy of comment.

### **Quartz Crystals**

Quartz crystals are absolutely essential in radio work and in telephonic, telegraphic and optical ap-

*Continued on page 105*



**The German infantryman is a veritable walking storehouse of aluminum. The effectiveness of his gas mask depends on coconut shell char, and the optical glass and quartz crystals used in range finders, periscopes and other optical instruments help to determine his efficiency as a fighting machine.**

# BLITZKRIEG on BUYING

## Reaches Its Objective

### Procurement Division Scuttles Centralized Purchasing

A REPORT in these pages last month ("How Pet White House Plans Were Blitzkrieged!" Page 37, April issue of PURCHASING) called attention to the fact that the essentially sound policy of centralized purchase control for governmental departments, sponsored by President Roosevelt as long ago as 1933 and provided for in executive orders, was being diverted from its original intent and effect through the program initiated by the Special Assistant to Treasury Secretary Morgenthau. The predictions made in that article have been fulfilled even more swiftly than the proponents of good purchasing practice had feared, and the wreck is now complete by virtue of a bulletin issued from the office of the Director of Procurement on April 19th.

Director's Order No. 73, issued June 1, 1939 and carrying the signature of the President and the Secretary of the Treasury, was explicit in designating the Procurement Division as a central purchasing agency for all commissions, establishments, boards, bureaus, divisions, services and offices of the executive branch of the Government, excepting only the Army, Navy and Marine Corps, and including the field agencies. It was a large responsibility, but an even greater opportunity to bring order, control, and efficiency into the expenditure of millions of dollars of public funds. That order stated, in part:

"The Procurement Division, Treasury Department, shall hereafter undertake the performance of procurement of all supplies for use either at the seat of government or in the field for all existing government agencies and such agencies hereafter created . . . .

"The offices of the Procurement Division now existing in the several states shall form the nucleus for the field activities of a general procurement service . . . .

"The Director of Procurement may, with the approval of the Secretary of the Treasury, issue such regulations and instructions as may be necessary to make the provisions of this order effective."

Instead of accepting that assignment and starting to build an effective program upon the foundation of existing central procurement machinery and establishing controls for extending that policy in accordance with the clear instructions quoted above, the regulations and instructions issued go to the other extreme of decentralization, practically renouncing central responsibility.

Procurement Division Bulletin No. 4-39, Supplement No. 2, issued April 19th to the State Procurement Officers who were to "form the nucleus for the field activities of a general procurement service," reads as follows:

"1. Pursuant to a recent change in policy adopted by the Procurement Division, all Government departments and agencies have been authorized to issue their own purchase orders for items chargeable to regularly appropriated funds in the following instances:

For supplies and services covered by Procurement Division (General Schedule of Supplies) contracts.

For supplies and services covered by State Procurement Office term contracts.

For supplies and services covered by term contracts of other Government department, as, for instance, Post Office Department official envelopes.

For supplies listed to be furnished by Federal Prison Industries.

For supplies listed in the Schedule of Blind-Made Products.

For supplies of a specialized or technical character and equipment peculiar to the requirements of a particular Government department or agency regardless of the amount involved.

For supplies to be obtained in the open market when the estimated cost does not exceed \$100.00. (The estimated rather than the actual cost of an open market purchase will establish the classification and will not be affected by any variation subsequently disclosed as between the estimated and the actual expenditure.)

"2. Purchases of items maintained in stock by the Procurement Division will continue to be effected through the submission of purchase authorities to the Procurement Division or to State Procurement Offices in accordance with the procedure heretofore established.

"3. The provisions outlined above are not to be interpreted as prohibiting the submission of a purchase authority to any Procurement Office, regardless of the amount or nature of the transaction involved, when in the opinion of the Requisitioning Agency, such action would be of advantage to the Government.

"4. These instructions have no application to the procurement of items chargeable to funds appropriated by the Emergency Relief Appropriation Act.

H. C. Maull, Jr.,  
Assistant Director of Procurement."

An experienced purchasing man will recognize the loose, ineffectual, and uncontrolled system of buying established by this order, a far cry from the principle of centralization expressed in the original plan. Here are just a few of the loopholes.

*Item 1.* The General Schedule of Supplies with its quarterly listing of government contracts and prices, is potentially a most valuable tool for purchasing and for purchase control. But its potentialities are largely unrealized, due to the almost completely decentralization of governmental fund accounting. Records of expenditures against such contracts eventually find their way to the office of the Controller General, and could be analyzed against the various contract items as well as against the appropriated funds. But from a practical

(Continued on page 98)



## PURCHASING THE NEWEST PROFESSION

THERE is an old story regarding an argument between an engineer, a surgeon and a politician as to which represented the oldest profession. The surgeon based his claim to this honor on the operation which removed Adam's rib; the engineer was positive that no profession was older than his because engineering was required to create the world and bring order out of chaos. Neither could think of a reply when the politician expressed his claim with the question, "If politicians weren't first who created the chaos?"

While we may not be interested in such ancient history, it is necessary to start with the fall of Adam and Eve to trace the developments which have produced the newest profession, Purchasing.

After the serpent completed the first recorded sale, Adam and his family were expelled from the Garden and the human race was sentenced to hard labor. Until that time they had led the life of Riley—although Riley was not born until years later and the two families never met—consequently they entered the fight for a livelihood unskilled in any of the arts and sciences. As a matter of fact they were the world's first underprivileged. There was no W.P.A., social security or

### Quantity or Quality— an ancient purchasing problem

welfare, the government would do nothing for them so they had to go to work.

As time passed some developed a greater degree of skill in some occupations than in others. For example, Eve was the only member of the first family who ever learned to sew and none of the others could cook a meal fit to eat. The natural result was that the boys decided, "a woman's place is in the home" and Eve no longer worked in the fields. Cain did the farming and Abel looked after the flocks. Nothing is said regarding Adam's occupation and perhaps this is where the old saying originated, "everybody works but father."

Time marched on, the world's population increased, life became more complicated, and the barter system developed. If a man made better arrows and spears than any of his fellow tribesmen they beat a path to his door with the products of their own labor and bargained for an exchange of goods. One smart prehistoric man invented a wheelbarrow and became the world's first transportation company, hauling goods for others.

on a share basis. The share demanded was determined by his desire for a part of the goods and not by the distance or tonnage handled. This resulted in some strange freight rates which were later confirmed by the I.C.C. and are still in existence.

When too many people of one tribe produced the same article, supply exceeded demand and customers were sought in other tribes. The tribes located near water exchanged fish for the game and farm products of inland tribes. Some had deposits of tin, copper or other metals, others had grain, wool and other farm products but no one had everything they needed. All production was by rugged individualists but the more specialized a man became the more he depended on others for his needs. He had to trade his product for necessities and if he spent too much time peddling his wares his production suffered and so did he.

This quite naturally led to a new occupation, that of tradesman. Some of the boys who were not very strong for manual labor but loved to travel, meet new people and talk a lot, started trading the product of one man's labor for that of another, taking a share from each as payment for this service. This was a useful service as the clients were relieved of the necessity of travelling from place to place to trade and could devote their entire time to production. But, the poor tradesman was under constant suspicion from both sides. He was the original buyer for Resale." There were no market statistics or surveys to guide his purchasing, no cold storage plants or warehouses to keep his wares safe and in good condition, his shipments were only as safe as his own power and efforts could keep them. He had to be both a shrewd buyer and a smart salesman to stay in business, and it is quite possible that it became part of his technique to outsmart his clients, at any rate, he was not well thought of socially and the term tradesman still implies social inferiority in some European countries.

Later money was invented and the tradesmen became shopkeepers or merchants. Other than the fact that their stores remained stationary and articles were purchased with cash instead of bartered for other materials there was, at first, not much change in either ethics or procedure. Then some artisans opened shops in connection with their manufacturing operations and started to sell direct to consumers. Their families helped with both sales and manufacturing and if business justified it they sometimes took in a few apprentices who worked for board and lodgings.

The introduction of machinery started the factory system and was the foundation of the industrial age.

The application of steam power to transportation enormously enlarged the scope of commerce. The Steamship reduced the distance between ports Railways opened up the interiors of continents and brought to the ports many commodities which would not otherwise have come into the world markets.

Development of tools meant that fewer people were required to produce the world's requirements of food and clothing and more time could be devoted to production of luxury items. More leisure time was available so the demand for more than bare necessities grew. This brought a more complex commerce and a readjustment of commercial functions. The changes which resulted in the establishment of purchasing officers and

the development of the purchasing function can best be traced by following the gradual growth of a small business to a huge enterprise. To obtain the best possible picture we should start with the history of our country and follow through to the present. Any resemblance to persons or companies now existing or defunct is purely co-incidental and is not intentional.

Back in 1785 the thirteen American Colonies were getting back to work after waging a successful rebellion against the mother country and setting themselves up as a free and independent nation. Elisha Palmer was the best blacksmith in his end of the State and, as was customary in those days, when there was no smithing to be done he built wagons to keep from being idle. There was a demand for good wagons and Elisha Palmer made the best wagons in his county so he had no trouble keeping himself and his two sons busy. People as far north as two hundred miles came to him for their wagons, but ten miles south was the State line and because at that time each State issued its own currency and was attempting to build up home industry with Customs duties against outside products he could not sell outside his own State. In 1789 the Constitution became effective and only the National Government had the power to issue currency. The States were expressly forbidden to "lay any imposts on imports." This made the United States the largest free trade unit in the world and was the foundation for our development into the world's greatest industrial nation. Business increased so much that Elisha was compelled to hire two more wagon makers and take on a few apprentices.

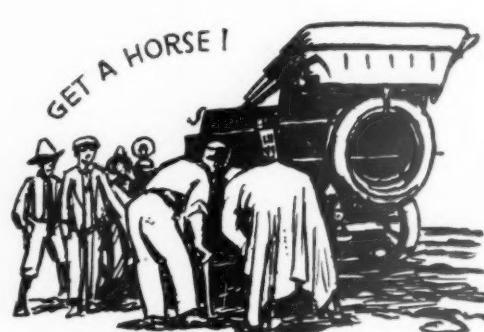
The invention of the cotton gin in 1792, and the development of western lands, increased the demand for wagons. Growth of the cities and better roads created a demand for carriages and Palmer opened a carriage department. By 1825 he was employing thirty men.

When he started in business Elisha bought iron, lumber and paint, which were the only materials he needed for his combination blacksmithing and wagon work. He worked on the forge, did his own wood work and painting. His accounts were quite simple and were taken care of with no more equipment than a few sheets of paper and a couple of spikes driven in the wall. As the business grew he did less manual labor and devoted most of his time to accounting, buying, selling and management. When he died and his son Eli took over the business several changes went into effect.

Elisha was very poor when he started and had to save and put money back into the business for so long that he never could change his habits. Eli was a comparatively wealthy man when he took charge, his wife

was a Junior Leaguer and he had to live up to his position. Society had changed and so had ideas of management. Eli hired a clerk to keep the accounts, appointed a foreman in each department, hired a salesman to bring in more business and devoted his time to management. At first he did all the buying but as time went on, and the business grew, he delegated more and more authority. The chief clerk was made responsible for the payrolls and the payment of bills. The foremen were permitted to do their own hiring

and firing, and were also permitted to buy their own supplies, but all large purchases were still handled by the manager. It was soon recognized that trouble would develop if records were not centralized, so one of the



clerks was assigned the duty of writing purchase orders. He did not see salesmen and never did any buying. In most small companies the manager did the selling. When he called on another firm he preferred to deal with its manager. This was especially true if there was a possibility of a large order, as prices were generally arrived at by haggling not unlike that of the early barter days.

In 1842 the first steam hammer was built in France and a few years later the Palmer Company installed one of the first to be brought to this country. This started a mechanization program which resulted in lower prices and greater volume. Branch factories were established in other states and things were going fine when several generations later the automobile threatened to ruin the wagon and carriage business. After struggling for a while the Board of Directors decided that they would go into the automobile business.

When Elisha started the business he required only three purchased materials—iron, lumber and paint. He knew all he needed to know about these products and their source, but automobiles required hundreds of items in their manufacture. The old blacksmith and wagon shop required few tools and supplies other than those which went into the product but mass production of automobiles required thousands of items for tool equipment and plant maintenance. Inspection gauges alone represented more investment than the entire capital of the company twenty-five years previously. The office employed more men than they had in the factory in those days and many changes had taken place in the organization. The old copy presses were gone and typewriters were in general use. All hiring was handled by an employment office. While the president was still interested in selling he turned that part of the work over to a sales manager. Ownership was no longer a one man proposition, the company had many stockholders and a board of directors established the company policies. A treasurer was responsible for all collections, deposits and payments. A purchasing agent was responsible for the procurement of all necessary materials, having them on the job when needed, paying the proper price and obtaining the proper quality.

This was about the time a popular song containing a line, "He had to get out and get under," was enjoying No. 1 position in the "Hit Parade" and the favorite greeting to a passing car was "get a horse". The automobiles of the day were very bad compared to those of today, so were roads and tires. But, it wasn't long until the whip sockets came off the dash boards and improvements in steel, rubber and other materials, as well as engineering, took the automobile definitely out of the parade of passing fads and started it on its way to become a National necessity.

In 1905 The Society of Automotive Engineers was formed and the coordination of scientific effort which resulted brought many changes not only to the automotive industry and its suppliers but affected all industry as well. Chemical and Metallurgical developments produced new alloys and entirely new products. New machine tools and equipment came along rapidly and

the procurement function became more complicated.

In 1912 and 1913 many purchasing agents, who felt the need for more information, began to organize groups interested in purchasing. These small local associations supplied a definite need but as they were limited in finances and membership they could not supply all the services needed. In 1914 about thirty of the nations leading purchasing agents met in New York City and organized the National Association of Purchasing Agents. This was to be a federation of local associations who would contribute to the National organization, which would coordinate the efforts of the locals and supply services none of them could afford to finance. The objects as given in their Constitution are: "To foster and promote intercourse and co-operation among its members; to develop and apply more efficient purchasing methods and practices; to collect and disseminate information of benefit to its mem-

bers regarding fundamental marketing, producing, and manufacturing practices, various products and their uses, and sources of supply and distribution; to correct trade abuses; to encourage the institution of courses in schools and colleges for the practical training of Purchasing Agents; and to strive by all legitimate means to advance the purchasing profession."

When the above was written purchasing was not a profession. There was a wide variation in individual training, requirements, standards, ethics and procedure. Not a single school in the world considered purchasing worthy of a place in their curriculum. Both sales tactics and purchasing practices still held some resemblance to the old procedure of the barter and tradesman days. This was about the time Elbert Hubbard wrote the classic description of a purchasing agent, and the stories about salesmen and their relation to agriculture originated. As late as 1920 a woolen mill recovered \$25,000 from a soap company and \$16,000 from a former superintendent because the soap company's sales methods had not kept pace with improvements in business ethics and commissions had been paid to the woolen company's superintendent. In 1921 the Federal Trade Commission cited a glue manufacturer for paying commissions of 5c a pound to superintendents and other employes of their customers.

The National Association of Purchasing Agents adopted a code of ethics, which was subscribed to by all members, before sales or general business considered a code necessary. They also co-operated with trade associations in the development of fair trade regulations, contract forms and sales agreements.

The Association developed the outline and sponsored the first class in purchasing at a Y.M.C.A. night school in New York. They also sponsored the world's first text book on the subject, and largely through their efforts other courses were started until today 24 schools give separate courses in purchasing and 63 include purchasing in other courses.

As industry grew more complex its demands for material became greater and more varied. Trade originated because no one had everything they needed

*Continued on page 136*



# PEN-POINTS ON PURCHASE LAW

BY H. H. SHIVELY, BABSON INSTITUTE



## 17: Failure to Meet Delivery Date

IT IS not necessary to provide in so many words in a contract that "time is of the essence." Without any such formal statement, the intention of the parties may show clearly that the time of performance is an important condition.

In the situation shown above, the parties specify the exact time of delivery. Both of them know that the steel bars are to be used for a special order. The seller must realize that delivery as promised is particularly significant in the mind of the purchasing agent. This purchasing official expects the raw materials on time so that his company can make its deliveries on time.

All these factors make fulfillment at the time fixed in the agreement of vital importance. Failure on the part of

the seller to meet the August 10th date should give the purchasing agent a clear right to rescind. This right means, in effect, that he may refuse to accept and pay for the goods.

The law, of course, does not countenance rescission for every trifling failure of performance. For minor failures, it grants only compensation in damages. For major ones, such as the one discussed, rescission is allowed.

Such rescission is a somewhat severe remedy. The purchasing agent will not always choose to avail himself of it. If he is able to use the materials at a later time, he may desire to retain them and seek an offset against the purchase price to compensate his company for the delay.

# THE MARKET PLACE



**First - of - the - month quotations  
for carloads or mill shipments,  
with comparative prices quoted  
one month ago and one year ago**

## ACIDS

	May 1 1939	April 1 1940	May 1 1940
Acetic, 28%, cwt.	2.13	2.23	2.23
Muriatic, 18 deg., cwt.	1.50	1.50	1.50
Nitric, 36 deg., cwt.	5.00	5.00	5.00
Oxalic, Works, cwt.	10.75	10.75	10.75
Phenol, Works, cwt.	14.25	14.25	14.25
Sulphuric, 66 deg., ton	16.50	16.50	16.50



## BUILDING MATERIALS

Brick, N. Y. dock, per M.	12.50	12.00	12.00
Cement, f.o.b. plant, bbl.	2.15	2.15	2.15
Glass, single B, per box	2.70	2.70	2.70
Lime, per bbl.	2.10	2.85	2.85
Nails, wire, per keg	2.45	2.55	2.55
Oak flooring, per M. ft.	70.00	72.00	72.00
Southern pine, K.C., per M. ft.	23.27	24.33	23.95 ↓



## CHEMICALS

Alcohol, denatured, gal.	.30½	.31½	.31½
Alum, potash, cwt.	3.40	3.75	3.75
Alumina Sulf., Comm., Works, cwt.	1.15	1.15	1.15
Ammonia, aqua, 26 deg., drums	.02	.02¼	.02¼
Arsenic White, cwt.	3.00	3.00	3.00
Red, cwt.	15.75	18.00	18.00
Barium Chloride, ton	77.00	77.00	77.00
Carbonate, ton	56.50	56.50	56.50
Benzol, pure, gal.	.16	.16	.16
Borax, powd., ton	48.00	48.00	48.00
Chlorine, cwt.	1.75	1.75	1.75
Formaldehyde, lb.	.05¼	.05¼	.05¼
Glycerine, drums, lb.	.12½	.12½	.12½
Lead acetate, white, broken, cwt.	10.00	11.00	11.00
Nickel sulphate Double	.13	.13	.13
Single	.13	.13	.13
Potash Caustic, solid	.06¼	.06¼	.06¼
Permanganate	.18½	.18½	.18½
Sal Ammoniac Gran. white, cwt.	4.50	4.50	4.50
Gran. gray, cwt.	5.75	5.75	5.75

## COAL & COKE

Anthracite, stove, mines	5.50	6.25	5.75 ↓
Bituminous, Cleaf, mine run	2.25	2.50	2.50
Bituminous, Pa. Grade A	2.40	2.30	2.30
Beehive Coke, Connellsburg	4.00	5.00	4.35 ↓
By-product Coke, Newark	10.80	11.38	11.38

## FERTILIZERS

Muriate potash, 80-85%, per unit K20	.53½	.53½	.53½
Sulphate potash, 90-95%, bags	38.00	36.25	36.25
Nitrate soda, bulk	27.00	27.00	27.00
Sulphate ammonia, dom. bulk	28.00	28.00	28.00
Steamed bonemeal, 3 and 50, per ton	23.00	32.00	32.50 ↑

## GRAINS

Barley, malting, bu.	.65	.68½	.68½
Corn, No. 3, yellow, bu.	.50¾	.58¾	.67¾ ↑
Oats, No. 2, white, bu.	.35	.42½	.45 ↑
Rye, No. 2, Western, bu.	.62¾	.84½	.90 ↑
Wheat, No. 2, hard winter, bu.	.72	1.01	1.08 ↑
Flour, spring patents, 196 lbs.	5.00	5.90	6.05 ↑

## HIDES

Light native cows, lb.	.10	.12½	.13½ ↑
Heavy native steers, lb.	.10	.12½	.13 ↑
Calfskins, 5-7 lbs. per skin	1.15	1.65	1.55 ↓

**ADVERTISING PAGES REMOVED**

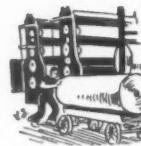
May 1 1939	April 1 1940	May 1 1940
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May 1 1939	April 1 1940	May 1 1940
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### **IRON & STEEL**

Pig iron, foundry No. 2 ....	21.00	23.00	23.00
Pig iron, basic, valley .....	20.50	22.50	22.50
Cast iron pipe, New York....	50.00	52.50	52.20
Forging billets, Pittsburgh base	40.00	40.00	40.00
Sheets bars, Pittsburgh base...	34.00	34.00	34.00
Wire rods, Pittsburgh base....	43.00	43.00	40.00 ↓
Cold rolled sheets, cwt., Pittsburgh base.....	3.20	3.20	3.20
Hot rolled annealed sheets, cwt., Pittsburgh base.....	2.15	2.10	2.10
Cold rolled strips, cwt., Pittsburgh base.....	2.95	2.95	2.95
Hot rolled strips, cwt., Pittsburgh base.....	2.15	2.10	2.10
Tin plate, cwt., Pittsburgh base	5.00	5.00	5.00
Bars, cwt., Pittsburgh base.....	2.15	2.10	2.15 ↑
Shapes, cwt., Pittsburgh base...	2.10	2.10	2.10
Bright wire, cwt., Pittsburgh base .....	2.60	2.60	2.60
Ground shafting, cwt., Pittsburgh base .....	2.70	2.70	2.65 ↓
Rails, ton, Pittsburgh base.....	40.00	40.00	40.00
No. 2 heavy melting scrap, ton, Pittsburgh .....	10.00	17.00	14.00 ↓

(Note: Sheet and strip items were reduced \$4 per ton on April 12th; prices restored May 1.)



### **PAPER**

News, roll, ton .....	50.00	50.00
Book, M. F., cwt. ....	6.00	6.25
Wrapping, northern, cwt. ....	4.75	5.00
Wrapping, southern, cwt. ....	3.50	4.00
Wrapping, manila jute, cwt. ....	7.75	8.25
Chip board, No. 1, ton.....	30.00	32.50
Wood pulp, mech., ton .....	22.00	32.00
Wood pulp, sulph., No. 1, cwt.	2.00	2.50
		2.62½ ↑



### **PETROLEUM**

Crude, Mid-Continent .....	.60	1.02	1.02
Crude, Penna. ....	1.45	2.30	2.30
Gasoline, 65 oct. ....	.06	.06¼	.06 ↓
Bunker Oil C.....	.95	1.50	1.50
Kerosene, 41-43 grav.....	.04¼	.06	.06
Penn. bright stock, light, 25 P.T. ....	.15¼	.34	.29 ↓
Penn. cylinder oil, 600 flash....	.10½	.25½	.21 ↓



### **RUBBER**

Smoked sheets .....	.16 1/6	.18 3/8	.20 ↑
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### **METALS, NON-FERROUS**

Aluminum, virgin ingots.....	.20	.19	.19
Antimony, American, spot....	.11½	.14	.14
<b>Copper</b>			
Electrolytic .....	.10¼	.11¼	.11¼
Casting .....	.09¾	.11	.11
Lake .....	.10¾	.11½	.11½
Chromium, 97%, spot.....	.85	.84	.84
Lead, E. St. Louis.....	.046	.049	.0495 ↑
Nickel, ingot .....	.35	.35	.35
Quicksilver, flask.....	94.00	183.00	171.00 ↓
Silver, bars, N. Y., per oz.....	.42¾	.34¾	.34¾
Tin, Straits, spot.....	.49¼	.455	.475 ↑
Zinc, E. St. Louis.....	.045	.0575	.0575

### **METAL PRODUCTS**

Copper, wire, bare, cwt.....	14.375	14.25	14.25
Yellow brass sheets, high.....	16.65	18.31	18.31



### **NAVAL STORES**

Turpentine, gal.....	.30½	.37	.35 ↓
Rosin, Grade B, bbl.....	4.70	6.25	5.40 ↓

### **PAINT MATERIALS**

White lead, dry, basic, car- bonate .....	.07	.07	.07
Carbon black .....	.03¾	.0255	.028 ↑
Shellac, orange .....	.10	.15	.14½ ↓
Linseed oil .....	.089	.108	.108

### **TEXTILES**

Cotton middlings, Galveston....	.0886	.1038	.1042 ↑
Cotton yarns, 22s.....	.20½	.24	.24½ ↑
Print cloths, 38½", 64x60 ....	.04¼	.0478	.05 ↑
Sheeting, 37", 48x48.....	.04%	.05	.05¼ ↑
Wool, fine combing, ½-blood..	.68	.86	.83 ↓
Worsted yarns, French 2-40s..	1.40	1.82½	1.80 ↓
Worsted yarns, English 2-40s..	1.32½	1.65	1.60 ↓
Silk, Japan, double extra cracks	2.64	2.77	2.55 ↓
Rayon, viscose, 150, 40s.....	.51	.53	.53
Burlap, 10½-oz., 40" .....	.0605	.071	.076 ↑
Hemp, Manila .....	.05½	.05½	.065 ↑

### Trade Association Activities Are Defined in Court Decision

THE consent decree handed down in the Federal Court April 23rd, terminating the criminal prosecution of major companies in the corrugated fiber board container industry, is likely to have far reaching importance in that it serves to clarify the policy of anti-trust law in respect to trade associations generally, and to define what may be considered as legitimate activities for such groups as well as to eliminate practices deemed to be illegal.

The defendants in this action were the National Container Association, the Stevenson Corporation (a trade association management concern), and a number of manufacturers representing approximately 65% of the total output of corrugated and fiber board containers in the United States. The indictment charged that the trade association had been used by the manufacturers as a mechanism for artificial control of the price and production of containers.

A condensed summary of the important rulings embodied in the decree is given below, classified under two headings—those which are barred, and those which are permitted.

#### These Practices Are Barred

- (a) to limit production to predetermined quotas.
- (b) to formulate, promote, or take part in any plan for prorating of business, or the equitable sharing of available business, the purpose or effect of which is to limit production to such quotas.
- (c) to determine the volume of business of manufacturers for any period or periods for the establishment of such quotas.
- (d) to collect, compile, or compare data respecting production, sales, orders, shipments or deliveries for the purpose of determining whether manufacturers have adhered to, or are adhering to such quotas.
- (e) to distribute production, shipment or price data in such form as to indicate that a manufacturer is or is not adhering to such quotas.
- (f) to present or discuss at meetings or elsewhere, or by correspondence or otherwise, production, shipment or price data in such form or manner as to indicate that a manufacturer has exceeded such quota or that it should limit present or future production so as to come within any such quota.
- (g) to examine or audit the production, shipment or price records or accounts of manufacturers for the purpose of securing adherence to any such quota.
- (h) to allocate or to refrain from soliciting customers of manufacturers, or to allocate markets or marketing territories among the several manufacturers.
- (i) to fix or maintain prices.
- (j) to use, or to promote the use of, an estimating manual or any other handbook or device for the purpose of fixing or maintaining prices.

#### These Practices Are Permitted

- (a) to gather and disseminate information as to the cost of manufacture and volume of production.
- (b) to meet to discuss such data, without, however, reaching an agreement or any concerted action with respect to prices or production.
- (c) to promote cost accounting, materials costs data, and credit.

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You don't have these worries when Parker-Kalon Self-tapping Screws go on the job. For the quality of each Parker-Kalon Screw is uniformly high . . . a quality maintained by Parker-Kalon's \$250,000 Laboratory and backed by over 25 years' experience in screw manufacture. This is your guarantee that every Parker-Kalon Screw will work right every time. Parker-Kalon Corporation, 202-204 Varick Street, New York, N.Y.



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The Apex Safety Friction Chuck maintains the friction setting . . . end thrust does not affect the setting . . . tool can be used in any position . . . and changed while machine is running . . . chuck slips before the tool breaks—saves time and manual labor.



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& TOOL COMPANY**  
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## PERSONALITIES *in the NEWS*

**John Goellner**, who has been Vice President in charge of Purchases for the Monarch Metal Weatherstripping Co., St. Louis, since 1922, has been elected president of that organization.

**Sumner R. Keyes**, Purchasing Agent of the Boston Edison Co., recently completed thirty-five years of service with that company. The anniversary was fittingly observed at the company offices, and a service pin presented to Mr. Keyes. After seventeen years in the laboratory, where he headed the standardization division, he was assigned to the Purchasing Department in 1922, became Superintendent of the Purchasing Department in 1924, and was appointed Purchasing Agent in 1929. He is a past president of the New England Association and served as Vice President of the N.A.P.A. for District No. 9; is a former chairman and present secretary-treasurer of the Public Utility Group, N.A.P.A.

**R. W. Fox** has been appointed Purchasing Agent of the Mississippi Central Railroad, with headquarters at Hattiesburg, Miss. He has for some time been Acting Purchasing Agent of the company.

**Miss Betty Knudsen** has been appointed Deputy State Purchasing Agent for Idaho, succeeding the late G. W. Mack. Miss Knudsen has been with the department since early in 1939.

**Frederick Steck Kirk**, for the past twenty years Purchasing Agent of the Supplee-Wills-Jones Milk Co., Philadelphia, has been named vice-president of the company, in charge of processing.

**Nathaniel S. Clifford** has been appointed Purchasing Agent of the Florence Stove Co., Gardner, Mass., succeeding Col. H. W. Stickle, retired.

**Sir Louis Beale** of the Anglo-French War Purchasing Board addressed a meeting of the Bridgeport, Conn., Chamber of Commerce last month, discussing war purchases.

**Harrison Parkman**, Purchasing Agent of the U. S. Post Office Department, Washington, addressed the Illinois state convention of postmasters at Belleville, Ill., last month, telling how the department keeps pace with social and economic changes in fitting its service to national needs.

**F. E. McPherren** is Purchasing Agent and port steward of the American Mail Line, Ltd. which opened offices in Seattle last month, replacing the Puget Sound-Orient Line as operators of a fortnightly service to the Orient.



DAGGETT RETIRES

**HERBERT MYRON DAGGETT**, for more than twenty years Purchasing Agent for the U. S. Industrial Alcohol Co. (now Air Reduction Sales Co.) retired from active business April 30th. He was guest of honor at a farewell party given by his friends at the Downtown Athletic Club, New York City, on April 11th. Joseph R. Taylor, Purchasing Agent for the Standard Oil Co. of New York was toastmaster for the occasion, and the dinner was attended by a hundred friends, including Purchasing Agents, business associates, executives, salesmen, and classmates (Class of '98) at Lehigh University. Mr. Daggett joined the New York Purchasing Agents Association in 1919, two years after coming with U. S. Industrial Alcohol Company, and has been an active and interested member.

**C. M. Daily**, City Purchasing Agent at Watertown, N. Y., and secretary of the New York State Conservation Council, Inc., addressed the annual banquet of the Old Oak Fish & Game Club, Fulton, N. Y., last month.

**R. W. Taylert**, Purchasing Agent of the Richardson Corp., Rochester, N. Y., and president of the Rochester Association, led a vocational discussion of purchasing before a student group of the University of Rochester at the Todd Union. Six other members of the Rochester Association participated in the program. Mr. Taylert also addressed a recent meeting of the Sales Managers Group, Rochester Chamber of Commerce, on "How I Like to Be Sold."

**Bruce Reid** has been appointed Purchasing Agent of Canada Copper Refineries, Ltd., Montreal, succeeding Ken Coombes, who has been transferred to represent the company in the United States.



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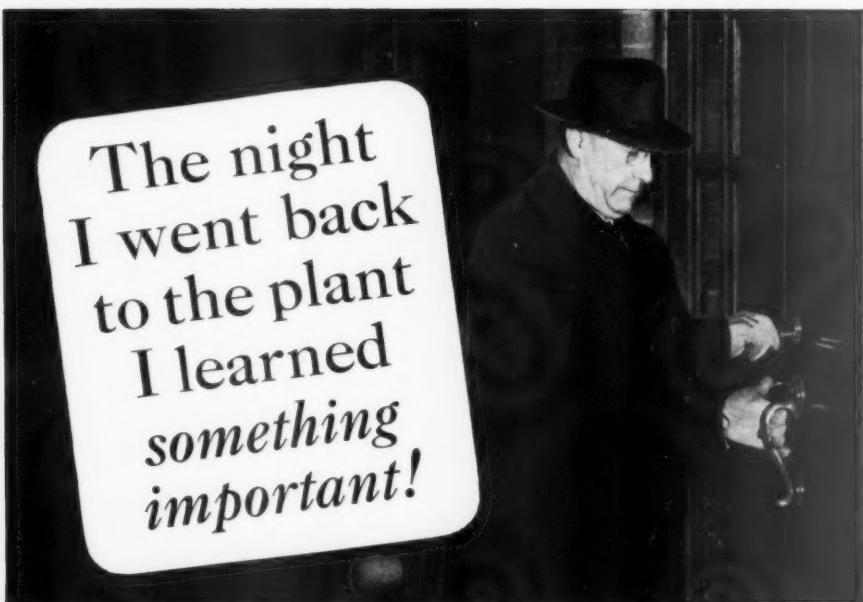
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# CYCLONE FENCE

## UNITED STATES STEEL

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**Hamilton H. Gardiner**, Purchasing Agent of Masco Co., Ltd., Toronto, has been elected vice-president of the Electric Service League, Inc.

**George Williams** has been appointed Purchasing Agent of the A. Nash Tailoring Co., Cincinnati, succeeding Elmer C. Pierce, who resigned to become head of the purchasing and promotion departments of the Seybold Paper Co. of the same city.

**R. B. Kane** has been appointed Purchasing Agent of the National Twist Drill & Tool Co., Detroit, succeeding the late William Base.

**Arthur G. Hopcraft**, Purchasing Agent of the Cleveland Worm & Gear Co., addressed a recent meeting of the Greater Buffalo Advertising Club on "The Humorous Side of Buying and Selling."

**E. C. Ryan**, Purchasing Agent of the National Breweries, Montreal, recently completed a half century of continuous service with that organization.

**Miller O. Dure**, General Purchasing Agent of the Globe Wernicke Co., Cincinnati, has been named assistant secretary of that company in addition to his purchasing duties.

**Harold K. LaRowe**, Assistant Purchasing Agent of the Dairymen's League Cooperative Assn., New York, and President of the New York Purchasing Agents Association, has recently addressed the buyers group of the New York City Purchasing Department, a luncheon meeting of Business Promotion, Inc., at the Harvard Club, the senior class of the School of Industrial Engineering, Columbia University, and students of Upsala College, East Orange, N. J.

**Alex Taller** has resigned as Purchasing Agent, director of research and planning for Gimbel Brothers, New York, to joint B. Cooper & Co., Jersey City, N. J., engineers and manufacturers, as development engineer.

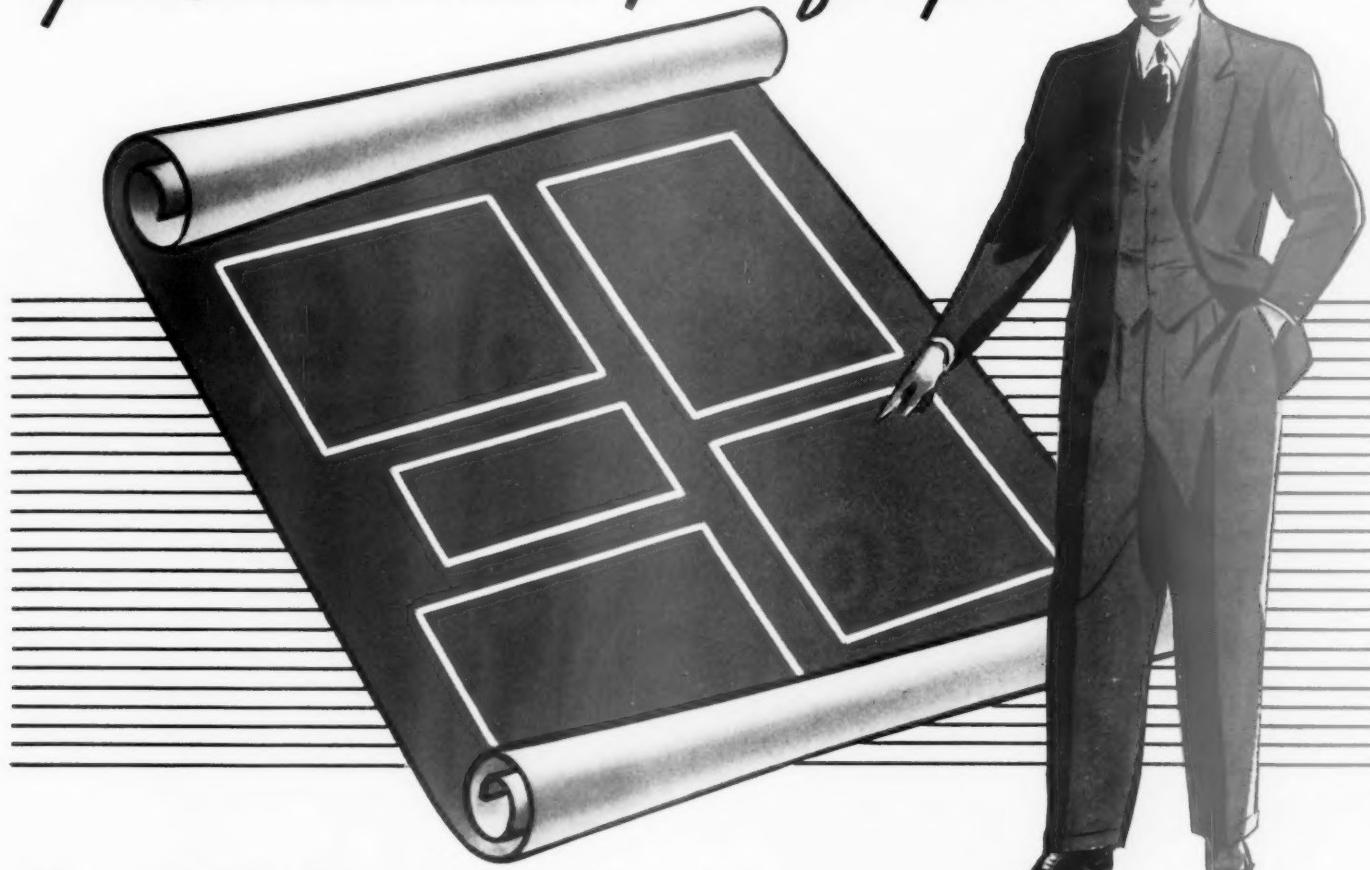
**George F. Lemmerman** has been appointed Purchasing Agent for the Cleveland (Ohio) Tool & Supply Co.

**Irwin Hadden**, Purchasing Agent for the Huntington Memorial Hospital, Pasadena, Cal., presided at the meeting of the Purchasing Agents' Section of the Western Hospitals Conclave at Los Angeles last month.

**R. C. Hopkins**, Secretary of the Kansas City Purchasing Agents' Association, has been elected president of the Kansas City Association for the Blind, and has been re-elected secretary-treasurer of the Secretaries' Forum.

**C. H. Tuttle**, Purchasing Agent for the Standard Oil Co. of Texas, at Houston, has been transferred to the Los Angeles offices of the company.

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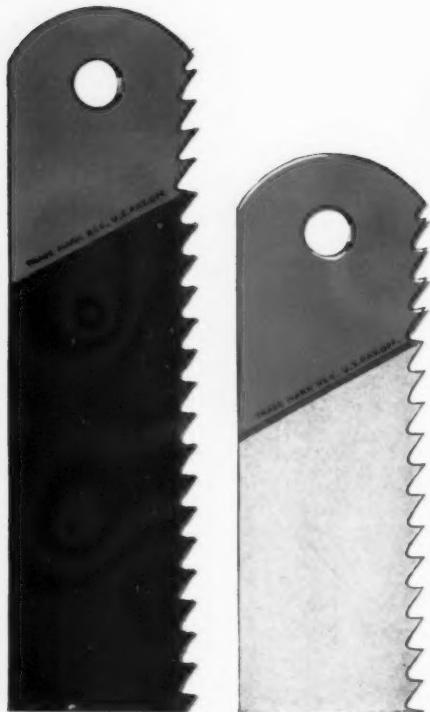
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Full High Speed Steel for toughest kind of Production Cutting.

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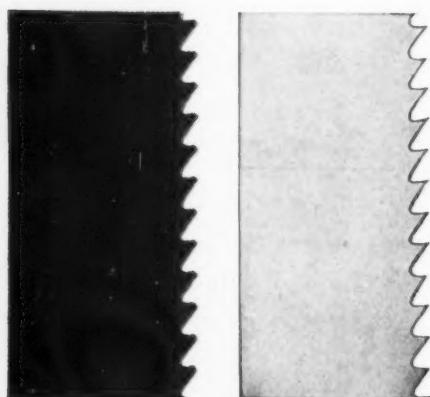
Molybdenum Steel Blade. Long wearing. Exceptional cutting quality.

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## Buyer's BOOKSHELF

**CAREER AS A PURCHASING AGENT**, one of a series of vocational monographs dealing with typical industrial opportunities. The purpose of this treatise is to give a broad picture of the career opportunities in purchasing work, for the young man making a selection of his life work. It covers industrial buying, the utilities, institutions, governmental and educational purchasing, with a general background of the development of modern buying and Association history, a brief review of typical organization and procedure, personal qualifications and training, etc. From the standpoint of the purchasing man, the study is not profound, and perhaps its chief significance is the recognition of buying as an executive function representing in itself a desirable goal for the young man selecting his career. From the vocational standpoint, which is of course the aim of the study and the basis on which it should be evaluated, the treatment is comprehensive, honest and stimulating, and it provides information which has heretofore not been specifically available and which is decidedly useful to purchasing as well as to the audience to which it is addressed. 24 pages, paper covered, illustrated with photographs and forms. Published by The Institute for Research, 537 So. Dearborn St., Chicago, Ill. Price \$1.00.

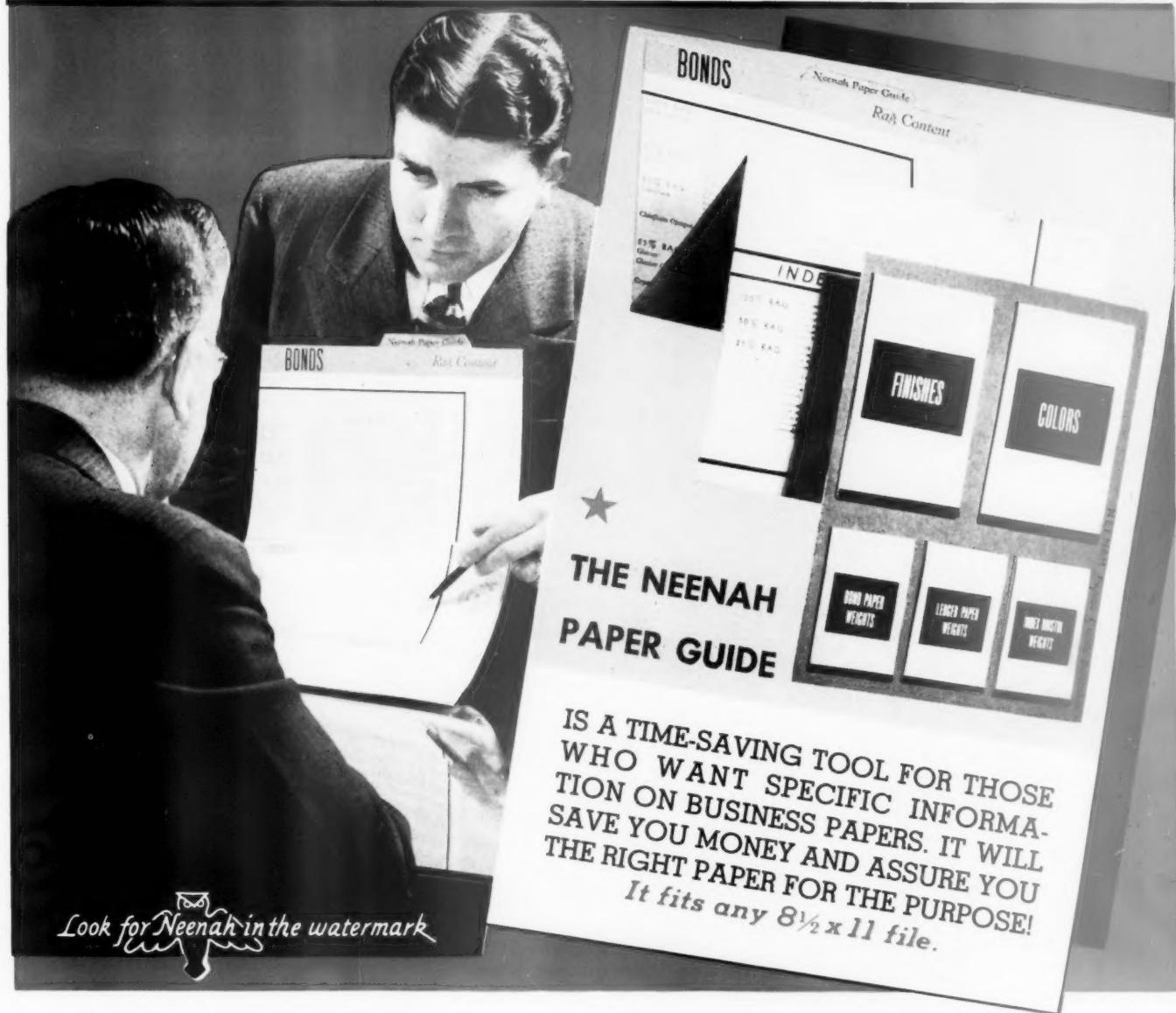
**THIS PECULIAR WAR**, by A. W. Zelomek, President of the International Statistical Bureau and economic consultant to the National Association of Purchasing Agents. The business uncertainties attendant on the war situation in Europe make this well-founded analysis of the situation exceedingly timely, and its essential value is not impaired by the rapidly changing scene, which finds Russia and Scandinavia among the belligerents, and the status of Italy very precarious, though all three are analyzed as neutrals a few weeks ago when this text was prepared. The discussion is under three general heads: the Political Aspects—the military background, the war that should not have begun, and the major adversaries, Germany, France and England; the Economic Aspects—a world economic review, Germany's increasing strength as France weakens, Germany at war and her raw material needs, transportation and economic warfare, and Britain's economic strength; and the War and the United States. Mr. Zelomek looks ahead to several possible outcomes regarding the type of warfare or the type of peace which may be consummated. His conclusions are that the influence of the war on U. S. business prospects will be felt gradually rather than in any sort of rapid boom, but that the influence will be generally buoyant and favorable; and that domestic influences will continue

to dominate our business situation. 143 pages, cloth bound. Published by the International Statistical Bureau, Inc., 70 Fifth Avenue, New York, N. Y. Price, \$2.00.

**GOLD MEDAL LETTERS**—1940, a portfolio of twenty actual business letters selected as winners of the 1940 Dartnell Gold Medal Award. The ability to write a successful business letter is an essential attribute of the successful executive in any phase of business, and there is much to be learned from a study of these examples, analyzed with a knowledge of the specific results that were obtained in each case—whether for the purpose of sales, collections, handling complaints, making friends, or bringing back lost customers. The method of presentation is unique. Each letter is reproduced in actual size on the company letterhead, just as it was sent, and editorial comment is restricted to a 50 word summary setting forth the results attained and pointing out the special approach or feature which made it click. Published by The Dartnell Corp., Ravenswood & Leland Aves., Chicago, Ill. Price, \$1.50.

**COMMODITIES IN INDUSTRY**—The 1940 Commodity Year Book, compiled by Commodity Research Bureau, Milton W. Jiler, Managing Editor. The second annual edition of this well conceived and capably edited work will be welcomed by purchasing men who have used the earlier volume, and will be found even more valuable. For not only have the statistics been brought up to date, and 100 pages added, but the scope of items has been considerably broadened, and the new arrangement in simple alphabetical order rather than in groupings, makes for quicker and easier reference. Besides the commodity data itself, there are pertinent discussions of war and commodities, trends in per capita consumption, and the increasing role of plastics as materials of industry, particularly in respect to their replacement of present basic raw materials. There is also an article on weather forecasting and its economic importance in the seasonal marketing cycles of a wide variety of industrial products as well as in agricultural production and income. The commodity section proper treats of 64 individual products, from alcohol to zinc. For each of these there is a comprehensive review of sources, processes, characteristics and markets; a review of the course of the market during 1939; and a tabular summary of the essential statistics of production, consumption and price, compared with the record of previous years. 708 pages, 200 charts and illustrations, cloth bound. Published by Commodity Research Bureau, Inc., 82 Beaver St., New York. Price, \$7.50.

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# *Among the ASSOCIATIONS*

## COLUMBUS BUYERS NOMINATE

Officers for the coming year will be elected at the May meeting of the Columbus Association. Nominations have been reported as follows: *For President*, S. L. Bachman of Capital University and J. T. Dunlap of International Derrick & Equipment Co.;

*For Vice-President*, C. R. Applegate of Timken Roller Bearing Co., and Walter D. Watkins of Kilgore Mfg. Co.; *For Secretary*, Miss Helen Zeise of Columbus Bolt Works Co.; *For Treasurer*, John P. Jones of Pixley Electric Supply Co. and Mather Moffett of Sumner & Co.; *For National Director*, Howard C. Hoeflich of the Case-Crane-Kil-

bourne & Jacobs Co.; *For Local Director*, Raymond D. Nateman of the Stone Grill Co. and M. C. Barr of the Columbus Malleable Iron Co.

Speakers at the meeting were Thomas D. Jolly of Pittsburgh, Robert Porter of Philadelphia, and George A. Renard of New York, respectively President, District Vice-President, and Executive Secretary of the N.A.P.A.

## NEW OFFICERS AT WINNIPEG

Officers for 1940-1941 have been chosen by the Winnipeg Association as follows: *President*, R. W. Maddock of Strong-Scott Mfg. Co.; *Vice President*, C. E. Spiers of Modern Dairies, Ltd.; *Secretary*, F. M. Oliver of Service Station Equipment Co.; *Treasurer*, C. B. Hallwood of Manitoba Power Commission; *National Director*, H. A. Morton of City Hydro-Electric System; *Canadian Council Member*, H. C. Barker of Parkhill Bedding, Ltd.

## CLEVELAND EAST END BUYERS ELECT

The East End Purchasing Agents Club, Cleveland, has elected the following officers for the coming year: *Chairman*, George Fay of the Ohio Rubber Co.; *Vice Chairman*, Tom Shomber of National Tool Co.; *Secretary*, Henry Smith of Addressograph - Multigraph Corp.

## APRIL 1

**BRIDGEPORT**—"Old Timers' Night" dinner meeting of the Salesmen and Purchasing Agents' Association, at the Stratfield Hotel. George Morrow was master of ceremonies. R. T. Phipps of the Bullard Co., senior past president, reviewed the work of the Association and introduced nine other past presidents.

## APRIL 2

**OAKLAND**—Luncheon meeting of the East Bay Group, Northern California Association, at the Lake Merritt Hotel. Motion picture, "The New Story of Ancient Wrought Iron."

## APRIL 4

**OIL CITY**—Dinner meeting of the Northwestern Pennsylvania Association, at the Arlington Hotel. An executive of the Owens-Corning Fiberglas Co. spoke on "Fiberglas," and a motion picture depicting the fabrication of aluminum was shown.

**SAN FRANCISCO**—Luncheon meeting of the Northern California Association, at the Palace Hotel. Speaker:



## Compression • Extension • Torsion Springtime

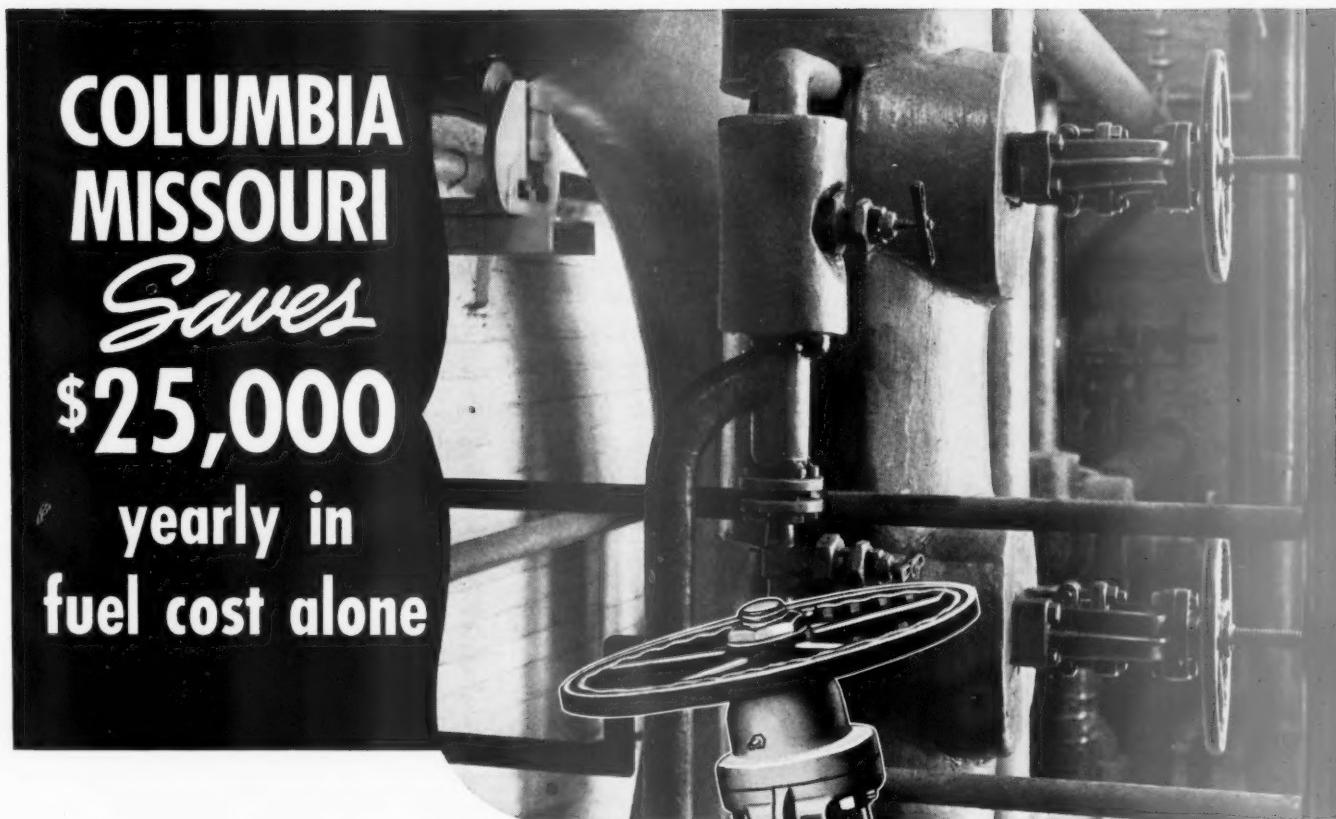
WHEN the time comes for you to buy springs, give thought to the quality and service you can get from Accurate. Whether the spring you need is the tiniest hair-like coil or a stout steel brute for slam-bang service, you'll find that Accurate controls and checks quality to the "nth" degree. Accurate builds dependability into its products to help you build it into yours. Accurate takes more than ordinary measures to meet delivery dates to help you meet yours. This care is building business for Accurate. It will help do the same for you. Let Accurate meet your next spring requirements — write today.



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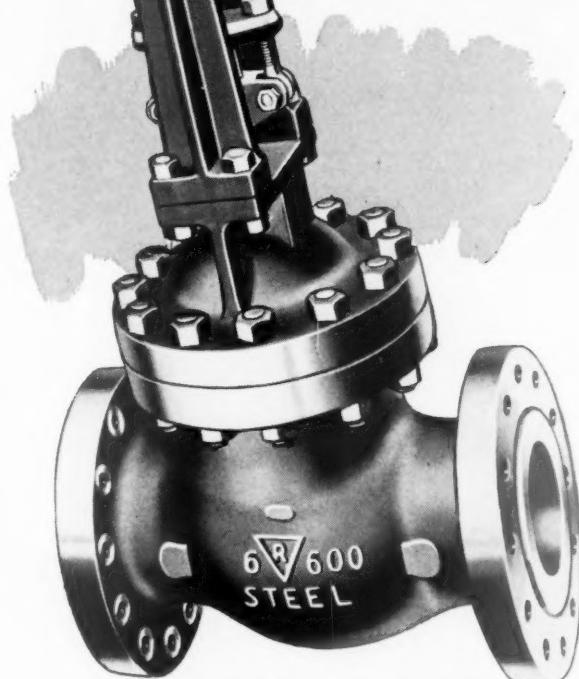


Reading-Pratt & Cady Fig. 4001 Cast Carbon Steel Gate Valves on the 400 lb., 750°F. steam header in the modernized power plant of the Water and Light Department, Columbia, Mo. Capacity, 60,000 lbs. of steam per hour.

★ Groeschel Company, Contractors, of Marshall, Mo., and D. Elrow Crane, Superintendent of the plant for the City of Columbia report that operations to date justify *expected savings of over \$25,000.00 yearly in fuel costs alone.*

Naturally, Reading-Pratt & Cady are gratified that engineering responsible for such savings should approve and install Reading-Pratt & Cady Valves so completely.

You, too, will find it good business to get Reading-Pratt & Cady recommendations for valves in your plant.



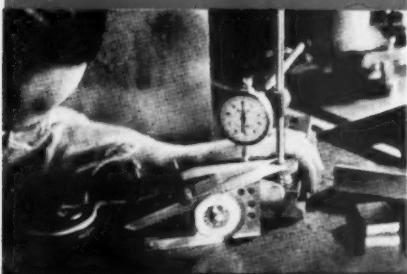
Reading-Pratt & Cady Fig. 6001, Cast Carbon Molybdenum Steel Gate Valves used on the 600 lb. 225°F. feed water lines.

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READING-PRATT & CADY DIVISION • BRIDGEPORT-CONNECTICUT

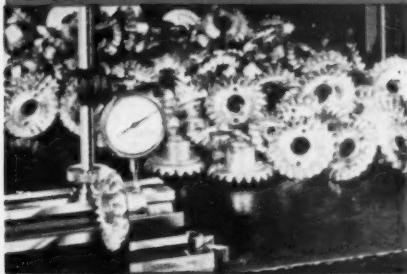
**AMERICAN CHAIN & CABLE COMPANY, Inc.**

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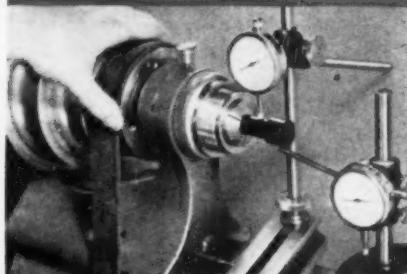
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CAN YOU USE  
STARRETT  
DIAL TEST INDICATOR  
No. 665?**



**IN THE TOOLROOM** — shown checking a small angle parallel.



**ON THE INSPECTION BENCH** — checking a set of bevel gears.



**IN THE LABORATORY** — testing socket screw for head-to-body concentricity — photo courtesy of Parker-Kingsley.

For suggestions and complete description, see Starrett Dial Indicator Catalog P (Second Edition).

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World's Greatest Toolmakers  
Manufacturers of Hacksaws Unexcelled  
Steel Tapes—Standard for Accuracy  
Dial Indicators for Every Requirement  
Athol, Mass., U. S. A.

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**STARRETT**  
**TOOLS**

Buy Through Your Distributor

John B. Knox, investment broker, "Today's Economic Foundation and Outlook."

**APRIL 5-6**

**ROANOKE**—Quarterly meeting of the *Carolinas-Virginia Association*, at the Hotel Roanoke. Speakers included Thomas D. Jolly of the Aluminum Co. of America, President of the N.A.P.A.; Robert Porter of the Provident Trust Co. of Philadelphia, District Vice President; James W. Knowlton, economist of the Duke Power Co., "Suppose Peace Comes"; and Congressman Robert J. Corbett of Pennsylvania, "Economics of Recovery." Mr. Knowlton pointed out that with vast new empires to exploit, Germany, Italy and Japan are no longer "have not" nations, and that the basic reason for fighting has largely been eliminated. Mr. Corbett predicted a fundamental reorganization of governmental and economic systems in the democracies at the end of the military phase of the present conflict, with private enterprise as the bulwark against an extreme form of socialism.

**APRIL 6**

**BUFFALO**—Annual dinner dance of the *Buffalo Association*, at the Buffalo Trap & Field Club. Thomas R. Beecher was chairman of the committee in charge.

**MINNEAPOLIS**—Eighth annual dancing party of the *Twin City Association*, at the Nicollet Hotel. The Sales Managers Association was invited to attend. An elaborate floor show and prizes were included in the program.

**APRIL 8**

**COLUMBUS**—Dinner meeting of the *Columbus Association*, at the Columbus Athletic Club. Speakers: Dr. Felix E. Held, Secretary of the College of Commerce and Administration, Ohio State University, and George E. Price, Jr., Purchasing Agent of the Goodyear Tire & Rubber Co., Akron, and District Vice President of the N.A.P.A.

**BOSTON**—Dinner meeting of the *New England Association*, at Schrafft's. Speaker: C. Delbridge of the Air Reduction Sales Co., "Air and Some of Its Commercial Applications." P. E. Bott of the Kinney Mfg. Co. led an afternoon conference on the handling of surplus and scrap materials.

The following have been nominated as officers for 1940-1941: *President*, Wyman S. Randall of Rust Craft Publishers, Inc.; *Vice-President*, Robert H. Sibley of W. F. Schrafft & Sons Corp.; *Treasurer*, George F. Williams of Eastern Steamship Lines; *National Director*, William B. Cummings of New England Confectionery Co.; *Directors*, George J. Cronin, State Purchasing Agent, George F. Gardner of The Winter Brothers Co., and Lloyd A. Lowe of C. H. Sprague & Son Co.

**PDXORTLAND**—Dinner meeting of the *Oregon Association*, at the Mallory

**PURCHASING**

Hotel, in charge of Gordon Lindsey and the educational committee. Discussion, "Buying the Proper Quantity," based on Chapter V of the N.A.P.A. Handbook.

**NEW ORLEANS**—Dinner meeting of the *New Orleans Association*, at the Jung Hotel. Officers for 1940-1941 were elected as follows: *President*, Emile L. Morvant, succeeding Lewis E. Stein; *Vice Presidents*, C. F. McDougal and Charles J. Beck; *Secretary*, Frank J. Basile; *Treasurer*, G. A. Lyncker; *National Director*, A. Grant Clark; *Alternate National Director*, Paul E. Olivier.

**APRIL 9**

**MILWAUKEE**—Dinner meeting of the *Milwaukee Association*, at the Elks Club. Speaker: George C. Peacock, President of the Wisconsin Fire Underwriters Association, "Insurance as it Applies to Industrial Plants." Forum discussion of purchasing problems, led by Gil Hartman of the Oilgear Co.

**OAKLAND**—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Speaker: Tod Powell, the Woodsman of the *San Francisco Chronicle*, "Fish I Have Met."

**VANCOUVER**—Dinner meeting of the *British Columbia Association*, at the Hotel Vancouver. Motion picture tour of the Windsor, Ont., plant of Ford Motor Co. of Canada, showing materials drawn from many parts of the Dominion, and following through the production and assembly lines to the finished car. Motion pictures were also shown depicting the manufacture of safety glass.

**CINCINNATI**—Dinner meeting of the *Cincinnati Association*, at the Hotel Gibson. Thomas D. Jolly of Pittsburgh, N.A.P.A. President, spoke on problems of wartime buying and plans for the forthcoming national convention. George Price, Jr., of Akron, District Vice President, spoke on Association affairs. Joseph McGlynn of the Hamilton County Council, American Legion Subversive Activities Committee, discussed European propaganda and spoke against American participation in any foreign war.

**TULSA**—Dinner meeting of the *Tulsa Association*. Motion picture on the manufacture of rock bits, shown through courtesy of the Hughes Tool Co.

**SAGINAW, MICH.**—Dinner meeting of the *Saginaw Valley Association*, at the Elks Club. Speakers: Walter Zoellner of Lufkin Rule Co., who discussed and showed various products manufactured by his company, and W. E. Whitehouse of Defoe Boat & Motor Works, who spoke on naval operations in connection with the war in Scandinavia.

**NEW YORK**—Dinner meeting of the *Metropolitan Purchasers' Assistants Club*, at the Hotel Great Northern. Speaker: Henry G. Elwell of Elwell,



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It is a fact that we are one of the world's largest manufacturers of specialized alloy steels. It is true that we have unexcelled manufacturing, laboratory and research facilities. These and a dozen similar facts are important but the *most* important thing to you is the fact that we *know how* to make the steel you need.

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Philips & Co., traffic managers for industries, "Cooperation Between Purchasing and Traffic Departments." The meeting was preceded by a demonstration and discussion of lighting problems and equipment, conducted by S. G. Hibben of the Lamp Division, Westinghouse Electric & Mfg. Co.

#### APRIL 10

**BOSTON**—Inspection visit of the *New England Association*, at the Loose-Wiles Biscuit Company plant.

**ST. PAUL**—Dinner meeting of the *Twin City Association*, at the St. Paul Athletic Club. Speaker: J. S. Shaw, Vice President and General Sales Man-

ager of the Brown-Bigelow Co., "Two Heads Are Better Than One." Motion pictures of the St. Paul Winter Carnival and of the 1939 N.A.P.A. convention.

**KANSAS CITY**—Dinner meeting of the *Kansas City Association*, at the Hotel President. Speakers: A. H. Maulsby of Socony-Vacuum Oil Corp., "Some Impressions Gained Through Twenty Years' Experience with Purchasing Agents," and Walter H. Hallstein of the Ilg Electric Ventilating Co., Chicago.

#### APRIL 11

**DALLAS**—Luncheon meeting of the *Dallas Association*, at the Adolphus

Hotel. Speaker: Ralph M. McCann of the Firestone Tire & Rubber Co., "Barometers in the Rubber Industry for 1940."

**SPRINGFIELD, MASS.**—Twenty-fifth anniversary meeting of the *Western Massachusetts Association*, at the Highland Hotel. Motion picture on the manufacture and use of abrasive materials. The meeting was preceded by a plant inspection trip through the Van Norman Machine Tool Co.

The following officers for 1940-1941 were elected: *President*, Stephen Kennedy of the Springfield Gas Light Co.; *Vice-President*, Robert Price of Package Machinery Co.; *Secretary*, Russell B. Day of Wico Electric Co.; *Treasurer*, Frederick H. Harper of the J. Stevens Arms Co.

**SEATTLE**—Annual meeting of the *Washington Association*, at the Washington Athletic Club. The program was in charge of the past presidents of the organization, with the following speakers: W. B. Donaldson of Wendell Hempill, Inc., and George A. Hawley of Northwest Screw Products Co., "If I Were a Purchasing Agent Again"; Frank A. Smith of the Carnation Co., and Herbert J. Dobb of Schwabacher Brothers & Co., "If I Were a Salesman." Carroll G. Holloway of Isaacson Iron Works was elected president for the coming year, succeeding Karl L. Bates of Matthews Hardwoods, Inc., who becomes National Director.

Other officers are: *Vice-Presidents*, Herbert H. Clarke of Wheeler Osgood Sales Corp., and M. F. McClane of Washington Cooperative Egg & Poultry Association; *Secretary*, George S. Drury of National Lead Co.; *Treasurer*, Herbert F. Price of Bethlehem Steel Co.; *Trustees*, D. P. Brewer of Trumbull Electric Mfg. Co., Frank A. Carson of Blake, Moffitt & Towne, and Charles V. Tinker of William O. McKay Co.

**CHICAGO**—Annual meeting of the *Chicago Association*, at the Hotel Sherman. Speaker: Allen H. Mogenson, consultant and motion study engineer of New York City, "Work Simplification." The following officers were chosen for 1940-1941: *President*, H. L. Brueggemann of Acme Steel Co.; *Vice Presidents*, H. M. Rowlette of Whiting Corp., and R. F. Stiles of Stewart-Warner Corp.; *Secretary*, L. R. Seen of Borg & Beck Div., Borg-Warner Corp.; *Treasurer*, Harry H. Wise of Scovill Mfg. Co.

#### APRIL 12-13

**SAN FRANCISCO**—Spring meeting of *District Council No. 1, N. A. P. A.*, attended by delegates from British Columbia, Washington, Oregon, California and Utah. Council members were guests at a luncheon meeting of the Northern California Association, Friday noon. Speaker: Robert L. Grube, National Director of the Los Angeles Association.

#### APRIL 16

**HAMILTON, ONT.**—Annual Executives' Night dinner meeting of the *Hamilton Association*. William J. Callaway,

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Every diamond solitaire we sell is guaranteed *in writing*—and is accompanied by a written refund guarantee agreement.

Ask for our interesting booklet  
"How to Choose a Diamond"

**DIAMONDS • WATCHES  
JEWELRY • SILVERWARE  
ELECTRIC APPLIANCES  
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**METAL PARTS  
...MADE TO ORDER...  
by MASTERS of METAL  
at a Saving in Trouble, Time and Money**

Contract manufacturing by Scovill means making metal parts or products to order in quantity as required by other manufacturers. This Scovill service covers a widely diversified range of products as shown by the collection illustrated above. Forgings, drawn and cold headed parts, stampings, machine screw products are shown — in a wide variety of metals, since Scovill works in brass, steel, aluminum, copper, nickel silver, bronze, and other base metals. These products go to a long list of basically different industries.

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You can have the Scovill story in detail by sending for the illustrated booklet "Masters of Metal." Please address 42 Mill St., Waterbury, Connecticut.

**SCOVILL INGENUITY DID THE JOB**

This shell demonstrates a unique production method developed by Scovill . . . one that fulfilled unusual requirements in an economical way.

The upper half of the shell required a wall thick enough to take a thread without weakening. For the lower half, a thinner wall gave ample strength. And it was necessary that the outside diameter be uniform over its entire length.

Scovill worked out an ingenious method of manufacture that strengthened the upper half of the shell by providing the extra thickness on the inside only. The new method involved no increase in the total number of operations . . . and made a substantial saving for the customer by reducing the weight of metal in the shell.



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MANUFACTURING COMPANY  
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Inspector of Dominion Income Tax Department, Hamilton District, spoke on corporate and personal income taxes.

**PITTSBURGH**—Annual meeting of the Pittsburgh Association, at the William Penn Hotel. Speaker: Donald G. Clark, Director of Purchases for the Gulf Oil Corp., "Salesmen I Have Known." The following officers for 1940-1941 were elected: President, L. M. Potter of Vanadium Alloys Steel Co.; Vice-President, H. R. Michel of Westinghouse Electric & Mfg. Co.; Secretary, C. H. Rindfuss of Pittsburgh Screw & Bolt Corp.; Treasurer, E. C. Buerkle of National Bearing Metals Corp.; National Director, W. E. Bittner of Diamond Alkali Co.; Directors, F. V.

Hanaway of Talon, Inc., R. O. Keefer of Aluminum Co. of America, William McKenna of Hanlon-Gregory Galvanizing Co., J. H. Phillips of Pittsburgh Steel Co., K. F. Tiegel of Pittsburgh Piping & Equipment Co., Walter Brubach of Gulf Oil Corp., A. N. Johnston of Jones & Laughlin Steel Corp., N. J. Crain of United Engineering & Foundry Co., Alan A. Garland of American Radiator & Standard Sanitary Corp., and I. E. Walton of Heppenstall Co.

**LOUISVILLE**—Dinner meeting and plant inspection trip by the Louisville Association, at the Brown & Williamson Tobacco Corp. Forum discussion led by W. T. McCutcheon, on "Changing Sources of Supply."

## PURCHASING

**CHARLESTON, W. VA.**—Dinner meeting of the Tri-State Association, at the Rufner Hotel. Speaker: V. J. Scott of the Rose City Press.

**NEW YORK**—Dinner meeting of the New York Association, at the Builders Exchange Club. Speaker: John H. Van Deventer, Editor of *The Iron Age*, "Strait Jackets for American Buyers." The meeting was preceded by a forum on "Methods of determining the most advantageous time and quantity to buy," led by John D. Leeson of RCA Mfg. Co.

### APRIL 17

**DETROIT**—Annual Ladies' Night party and dance of the Detroit Association, at the Forest Lake Country Club.

**CANTON**—Dinner meeting of the Canton & Eastern Ohio Association, at the Elks Club. The program was in charge of Past Presidents of the Association.

**BALTIMORE**—Dinner meeting of the Baltimore Association, at the Lord Baltimore Hotel. Speakers: Thomas D. Jolly of Pittsburgh and Robert Porter of Philadelphia, president and vice-president of the N.A.P.A.

**ERIE**—Dinner meeting of the Erie Association, at Sunset Inn. Speaker: Francis D. Bowman, Advertising Manager of the Carborundum Co., "An Illustrated Trip Through the Carborundum Plant."

### APRIL 17-18

**ST. LOUIS**—Member Products Display of the St. Louis Association, at the Hotel Jefferson. More than forty educational exhibits, representing a wide variety of industrial products, were open for inspection throughout the two-day period. Walter M. Lowry of National Lead Co. was in charge of arrangements for the exhibits, and William Grossman of A. Leschen & Sons Rope Co. was chairman of the program committee.

*Wednesday luncheon meeting.* Speaker: Dr. Arthur Allen Stockdale of the National Association of Manufacturers, "This American Business—What Is It?"

*Wednesday dinner meeting.* Speaker: Samuel W. Fordyce of Fordyce, White, Mayne, Williams and Hartman, and director in many leading financial and industrial organizations, "Off the Record."

*Thursday noon.* Joint luncheon meeting with the Sales Managers' Bureau of St. Louis. Presentation of the four-act drama, "The Salesman and the P. A." by Stuart F. Heinritz, Editor of PURCHASING and Prof. A. C. Busse of New York University, with the following cast:

Act I. The Graveyard of Good Will  
Mr. Fansler, P. A. .... Ray Grote  
Miss Prim, receptionist

Miss Celeste McCloskey  
Mr. Ralph, salesman .... Wm. C. Smith  
Mr. Allen, salesman .... Carl Meyer, Jr.  
Mr. Thayer, salesman .. Lester Reinke  
Mr. Ormond, salesman . Charles Morgan  
Mr. Clayton, salesman ..... Tom Mills



Once this operation required two drills and two jigs. A G.T.D. Greenfield engineer suggested a special step-drill. Result, a nice substantial cost reduction. G.T.D. Greenfield engineers are continually analyzing actual threading, drilling and reaming operations. They acquire a vast fund of practical ideas which they can bring to any manufacturer. Sometimes a variation of speed or lubricant will mean savings as substantial as those which involve actual tool design. Give the G.T.D. Greenfield engineer a chance.

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Los Angeles and San Francisco  
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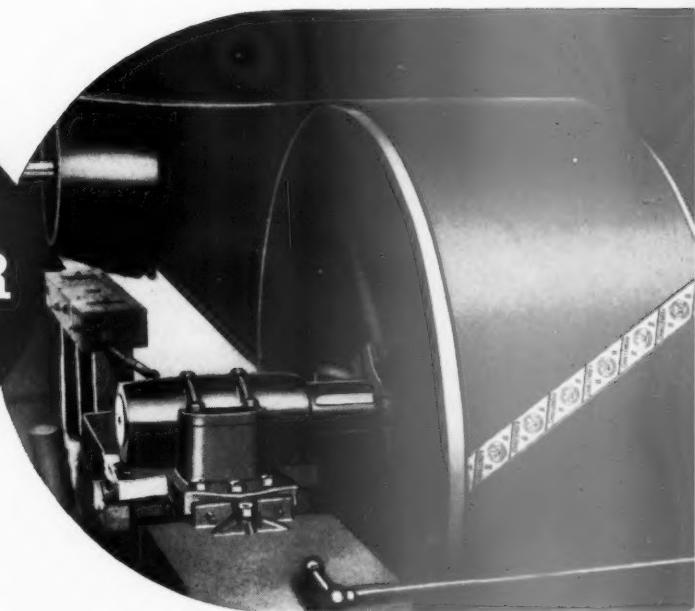


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**TRANSMITTING POWER  
At Greatest Efficiency**

**REPUBLIC'S  
CHALLENGER  
BELTING**

Complete operating efficiency of transmission drives depends upon low maintenance costs, preparedness for overload emergencies and steady flow of power without disturbing vibrations. Rugged, heavy-duty Challenger Transmission Belting has been a consistent aid to this type of performance in every industrial field. The merits of its operating ability—endurance, low stretch, even tension and minimum slippage—have been outstanding under the most severe conditions of shock and stress. Arrange with your Republic



Distributor for a Challenger installation. Check for lower maintenance costs and superior serviceability on your own grounds. REPUBLIC RUBBER DIVISION OF LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN, OHIO.

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**REPUBLIC**

Order  
REPUBLIC  
PRODUCTS  
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**RUBBER**

Mr. Howard, salesman ....L. H. Luth  
Mr. Hoople, P. A. ....George Brown  
Messenger .....Ed Kansteiner  
Act. II. Who's Gonna Hold the Bag?  
Mr. Peel, P. A. ....Lee Bussmann  
Mr. Ford, salesman .....Harold Duffy  
Mr. Mullen, Sales Manager

H. J. Reinhardt

Act. III. Horse and Buggy Purchasing  
Mr. Rancid, P. A. ....Norman Gould  
Mr. Hatch, salesman ..George Frederick

Act IV. Whose Baby Is It?

Mr. Slocum, P. A. ....William Krueger  
Mr. Mowry .....Walter Doelling

Dr. Ralph B. Wagner, Director of  
Speech at the St. Louis University,  
coached and directed the production.

*Thursday evening.* Ladies' night dinner meeting and entertainment. Presiding Officer, Herbert DeStaebler of Lambert Pharmacal Co., President of the St. Louis Association.

**SCHENECTADY**—Twentieth Anniversary dinner meeting of the *Eastern New York Association*, at the Mohawk Club. An attractive souvenir booklet was issued to commemorate the occasion, showing a complete roster of membership since the organization of the Association, minutes of the organization meetings, and some of the highlights of Association history and accomplishment. It recalls that the Public Utility Group of N.A.P.A. was organized and led by

Lewis A. Jones, then Purchasing Agent for the New York Power & Light Corp., in 1924; that the Pulp and Paper Manufacturers Group was organized and led by George W. Browne of A.P.W. Paper Co., in 1930; that Lewis A. Jones became national president of N.A.P.A. in 1928; and that a paper cooperatively prepared by the membership of the Association won a prize award in the 1932 N.A.P.A. contest on "Responsibilities and Prerogatives of the Purchasing Agent and his Department."

Officers for 1940-1941 have been elected as follows: *President*, A. K. Munson of United Traction Co.; *Vice-President*, Harry L. Erlicher of General Electric Co.; *Secretary*, A. B. Wadsworth, Jr., of Allegheny-Ludlum Steel Corp.; *Treasurer*, Edmund L. Corrie of State Bank of Albany; *National Director*, J. L. Hodgkins of H. B. Kimmy Co.; *Executive Committee*, C. P. Spuck of Sager-Spuck Supply Co., M. L. Jacobs of Cohoes Rolling Mill Co., and G. L. Fuller of New York Power & Light Corp.

**CLEVELAND**—Annual meeting of the *Cleveland Association*, at the Hotel Cleveland. The following officers were elected for the coming year: *President*, J. R. Keach of the Ohio Rubber Co.; *Vice Presidents*, Paul T. Skove of Perfection Stove Co., and H. B. Markle of Harris-Seybold-Potter Co.; *Secretary-Treasurer*, F. E. Chesney of American Steel & Wire Co.; *National Director*, Vince Cada of Eaton Mfg. Co.; *Directors*, B. E. Bergquist of General Electric Co., R. E. Gray of Kaynee Co., and J. R. Stevens of Harshaw Chemical Co.

**BIRMINGHAM**—Luncheon meeting of the *Birmingham Association*, at the Redmont Hotel. Speaker: Prof. Hudson Strode, "South America."

**SAN FRANCISCO**—Dinner meeting of the *Northern California Association*, at the Palace Hotel. Speakers: James MacPherson, Director of Purchases and Stores, Standard Oil Co. of California, "The Authority of the Purchasing Agent"; and Prof. Royal A. Roberts of the University of California, "Relation of the College Student to Purchasing."

#### APRIL 19

**SALT LAKE CITY**—Plant inspection visit of the *Utah Association*, at the Carbon County mines of the Independent Coal & Coke Co.

**PORLAND**—Luncheon meeting of the *Oregon Association*, at the Mallory Hotel. Motion picture, "The Manufacture of Aluminum."

**LOS ANGELES**—Thirteenth annual Industrial Products Exposition sponsored by the *Los Angeles Association*, at the Elks Club. The exhibit was officially opened with a luncheon meeting of the Los Angeles Optimists Club and the Chamber of Commerce, presided over jointly by the presidents of these two organizations, Jack Tongue, Presi-



## THIS NEW SLING HANDBOOK

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Capacity and weight comparisons of slings, wire rope and chain . . . safe working loads for Atlas, Monarch and Drew Slings . . . 66 photographs of Slings and Fittings . . . Typical Assemblies . . . Crane signals . . . Breaking Strength and weight comparisons . . . Sling fittings (hooks, thimbles, shackles, links) . . . and many, many more pages of useful information.

**MACWHYTE COMPANY**, 2918 Fourteenth Ave., Kenosha, Wisconsin. Manufacturers of wire rope and braided wire rope slings. Branches in principal cities; distributors throughout the U. S. A.

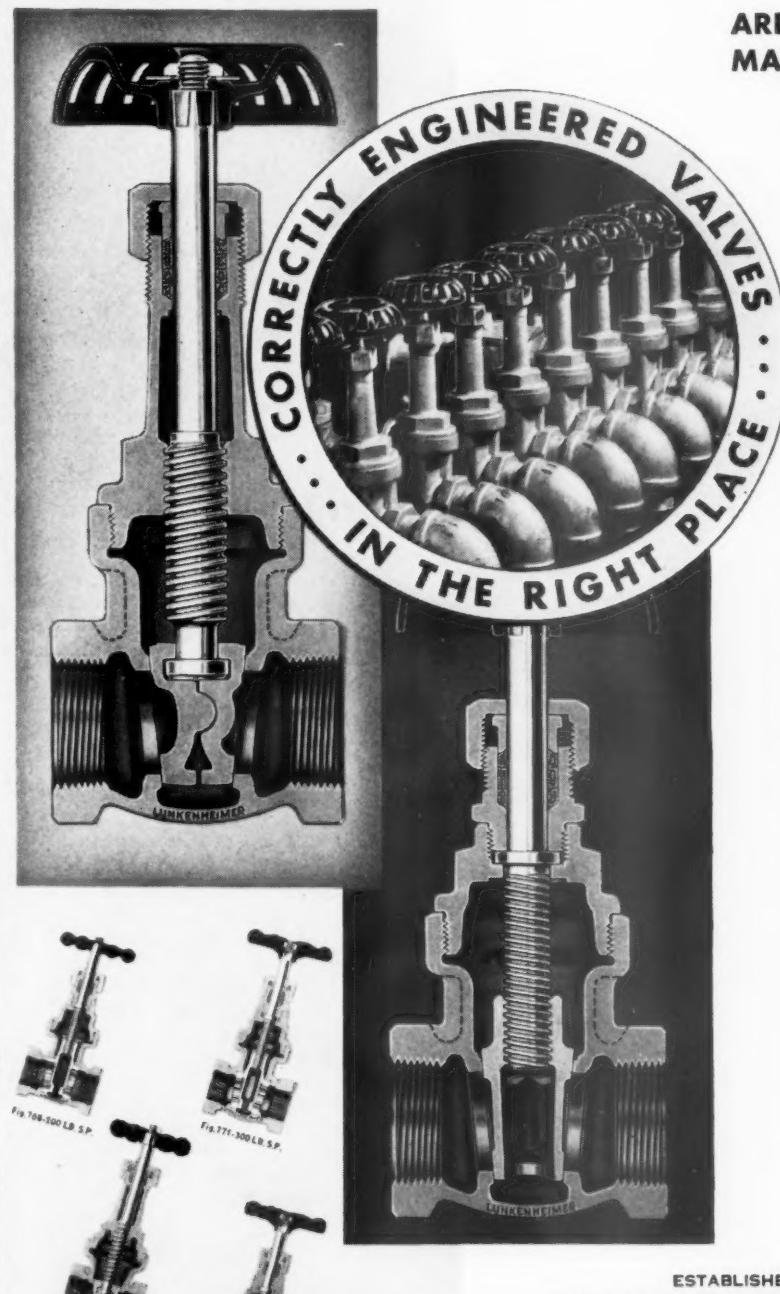


*When writing Macwhyte Company please mention Purchasing*

*Designed with extra strength where needed, interchangeable parts, plus other features that save servicing time . . . . .*

## LUNKENHEIMER BRONZE GATE VALVES

**ARE "CORRECTLY ENGINEERED" FOR MAXIMUM ECONOMY ON THE JOB!**



From handwheel to pipe threads, there are at least a dozen places to look for convincing evidence that LUNKENHEIMER BRONZE GATE VALVES first, give you more for your valve buying dollar . . . and then save you more on your valve maintenance dollar. Such features as unusually heavy body and bonnet construction, more powerful and accurately machined stem threads, exceptionally sturdy bonnet collar, extra deep stuffing boxes . . . these all combine to guard against failure at points where experience has shown that trouble is most likely to occur. Being an assembled job, with all units produced on a precision basis, any given part can readily be replaced from stock with full assurance of a perfect fit. Even comparatively small details, like beveled disc guides, to facilitate servicing, and the unique stem seat in bonnet, to permit repacking with valve wide open, play a part in the all-over economy of these quality products. You owe it to the profit side of your ledger to investigate the substantially greater value to be found in this line of "correctly engineered" bronze valves.

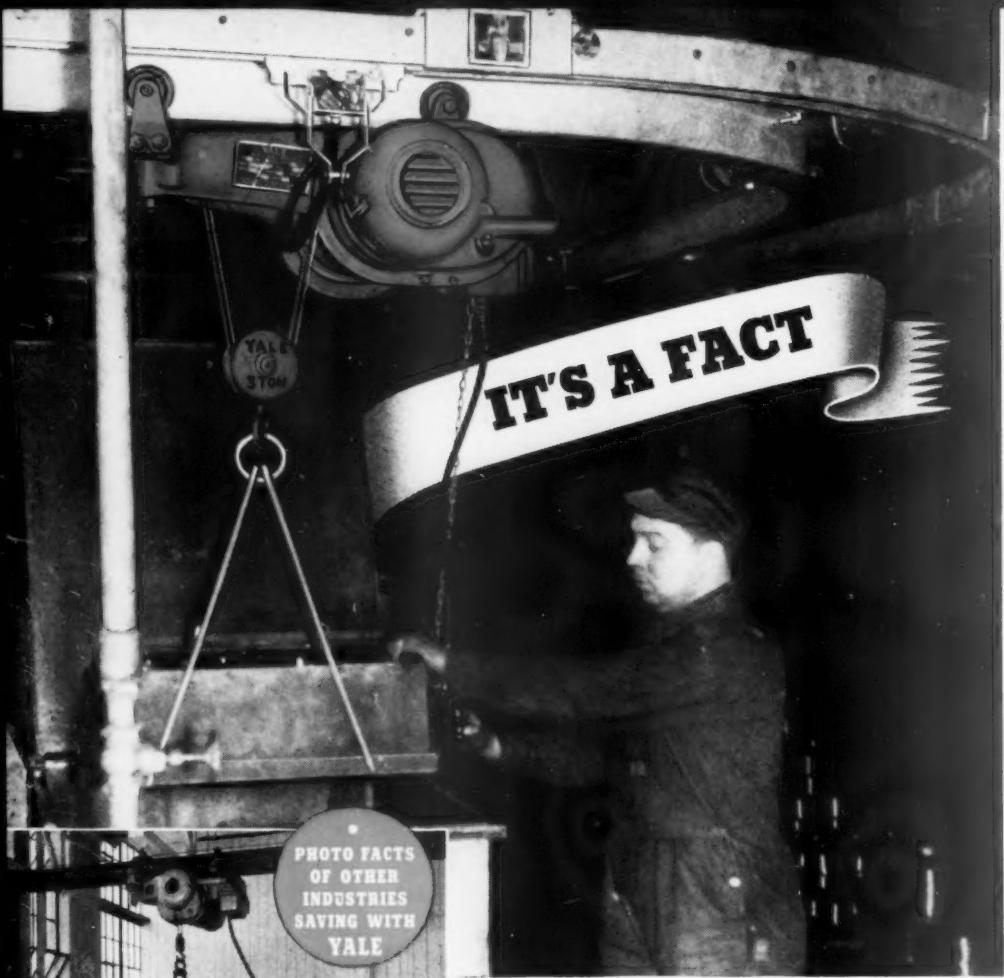
### SEEING IS BELIEVING!

Naturally there are basic Lunkenheimer qualities, such as finer materials, continuous metallurgical research, painstaking manufacturing and testing processes, which cannot be seen in the products themselves. We do believe, however, that the purely visible qualities of Lunkenheimer valves will prove conclusively that they are inherently better able to serve you profitably. Won't you, therefore, ask our distributor's salesman, on his next call, to take a Lunkenheimer valve apart and compare it part-for-part with whatever valve you are now using?

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**THE LUNKENHEIMER CO.**  
 "QUALITY"  
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Send for copy of our new Catalog No. 78. We will include our handy "Guide", which makes selection easy by grouping valves, boiler mountings, and lubricating devices according to pressures, temperatures, and service applications.

# LUNKENHEIMER

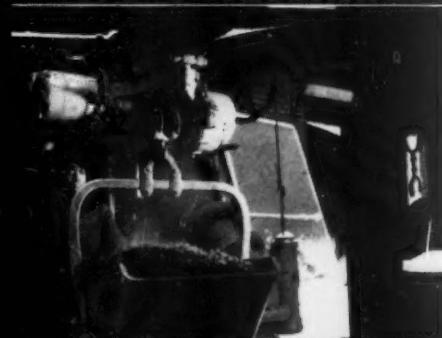


## "OUR CABLE KING SAVES US OVER 25% IN OPERATING TIME", SAYS THE CAMDEN WIRE COMPANY

### RUGS



### BUILDING MATERIALS



### POWER HOUSE

#### Mr. Purchasing Agent:

This advertisement is addressed to you—because your job is to buy quality at the right price. We offer this as convincing evidence that you get both with YALE.

25% is a lot of time to save. Yet that's the saving effected by The Camden Wire Company through the use of their Cable King Wire Rope Electric Hoist.

Here is an excerpt from their testified statement: "The Yale & Towne Cable King recently purchased has been installed and is doing a fine job. This hoist replaced other mechanical equipment and we figure it saves about 25% out of every hour of the operator's time."

Figure how much time your operators are now consuming for hoisting operations. Cut it by 25%. Now, don't you think it might be worth your while to find out more about the Cable King?

For full information contact your local Yale distributor or write direct.



**THE YALE & TOWNE MFG. CO.**  
PHILADELPHIA DIVISION, PHILADELPHIA, PA., U.S.A.  
IN CANADA: ST. CATHARINES, ONT.

Makers of Yale Hand Chain Hoists, Electric Hoists, Electrical Industrial Trucks, Hand Lift Trucks and Skid Platforms.

dent of the Los Angeles Purchasing Agents Association, presided at a joint banquet meeting of the Sales Managers' Association. The principal speaker was J. L. Van Norman, newly elected President of the Los Angeles Chamber of Commerce.

#### APRIL 19-20

**NIAGARA FALLS**—International Conference sponsored by the *Toronto, Hamilton, Rochester, Syracuse, Buffalo, and Northwestern Pennsylvania Associations*, at the Hotel Niagara.

*Friday noon.* Luncheon meeting in honor of national officers of N.A.P.A., Thomas D. Jolly, George A. Renard, Robert Porter, and S. E. Webster, and National Directors of District No. 8. Presiding Officer, Charles T. Boldt, President of the Buffalo Association. Speaker: George A. Renard, Executive Secretary of N.A.P.A.

*Friday afternoon.* Forum session, led by C. R. McNeil, President of the Hamilton Association; C. H. Kissel, President of the Syracuse Association; R. W. Taylert, President of the Rochester Association; F. W. Wodrich, President of the Northwestern Pennsylvania Association; and L. Tolson, President of the Toronto Association. Speakers: Julian G. Davies, Purchasing Agent and Treasurer of N. Slater Co., Ltd., Hamilton, "Canadian Conditions—Present and Future"; H. N. McGill, President of the McGill Commodity Service, Auburndale, Mass., "Business Conditions and Outlook in the United States."

*Friday evening.* Dinner meeting and entertainment. Speakers: Thomas D. Jolly of Pittsburgh, President of the N.A.P.A., S. E. Webster of Montreal, Vice President of District No. 5, and Robert Porter of Philadelphia, Vice President of District No. 8, "National Affairs"; Arthur G. Hopcraft of Cleveland Worm & Gear Co., Past President of the N.A.P.A., "Purchasing—Past and Present."

*Saturday.* Meeting of District Council No. 8, Robert Porter presiding.

**FORT WAYNE**—Meeting of District Council No. 4, N.A.P.A.

#### APRIL 20

**NEW ORLEANS**—Barn dance of the *New Orleans Association*.

#### APRIL 23

**OAKLAND**—Luncheon meeting of the *East Bay Group, Northern California Association*. Sound motion picture, "A New Voice for Mr. X," shown by courtesy of the Pacific Telephone & Telegraph Co.

**AKRON**—Dinner meeting of the *Akron Association*, at the University Club. Sound motion picture shown through courtesy of Westinghouse Electric & Mfg. Co.

**BRIDGEPORT**—Dinner meeting of the *Connecticut Association*, at the Stratfield Hotel. Speaker: Hon. Joseph P.

Martin, Assistant U. S. Attorney of the Southern District of New York, "Crime—The Values of Vice."

**SYRACUSE**—Annual meeting of the *Syracuse & Central New York Association*, at the Onondaga Hotel. The following officers were elected for 1940-1941: *President*, George L. McCaffrey of Own-Dyneto Division, U.S.L. Battery Corp.; *Vice Presidents*, Lewis W. Sanborne of Crowley's Milk Co., Binghamton, and Carl J. Kuckhoff of Syracuse Stamping Co.; *Secretary*, F. J. Quinn; *Treasurer*, M. E. Jennings of Selflock Screw Products, East Syracuse; *National Director*, C. H. Kissel of Goulds Pumps, Inc., Seneca Falls; *Directors*, D. A. Brewer of Brewer-Titchener Corp., Cortland, F. S. Thompson of Lowman Folding Box Co., L. A. Saunders of New Process Gear Corp., and Chessell King of Easy Washing Machine Corp.

#### APRIL 25

**SAN FRANCISCO**—Luncheon meeting of the *Northern California Association*, at the Palace Hotel. Speaker: Edward Rust of the Commercial Art Engraving Co., "Making Engravings."

**HARRISON, N. J.**—Plant inspection visit of the *Metropolitan Purchasers' Assistants Club*, at the Worthington Pump & Machinery Corp.

**MONTREAL**—Annual meeting of the *Montreal Association*, at the Mount Royal Hotel. J. Bruce Jordan of the National Drug & Chemical Co. was elected president for 1940-1941, succeeding W. O. Graburn of Ottawa Car & Aircraft, Ltd. Other officers for the coming year include: *Vice President*, W. B. Osler of Harrison Bros., Ltd.; *Secretary*, J. S. M. Hayes of Shipping Containers, Ltd.; *Treasurer*, W. M. Hall of Power Corp. of Canada, Ltd.; *National Director*, H. A. Corriveau of St. Lawrence Sugar Refineries, Ltd.; *Canadian Council Chairman*, E. J. Trott of International Paints, Canada, Ltd.; *Executive Committee*, J. G. Brigg of Dominion Textile Co., George J. Deignan of Consolidated Lithograph Mfg. Co., E. H. Judge of Price Bros. & Co., and Arthur G. Sullivan of Foundation Co. of Canada, Ltd.

#### APRIL 26

**ROCHESTER**—Fifth annual Ladies' Night dinner and dance of the *Rochester Association*, at the Rochester Club. The following officers have been elected for 1940-1941: *President*, A. P. Lapp of Stecher-Traung Litho Corp.; *Vice Presidents*, James H. Cooney of Retsof Mining Co., and Herbert B. Collins of Eastman Kodak Co., Camera Works; *Secretary*, John T. Harbison of Eastman Kodak Co., Hawk-Eye Works; *Treasurer*, Harry L. Cooper of Rochester Packing Co.; *National Director*, James A. Cooney; *Directors*, Roman Taylert of Richardson Corp., W. A. Charity of Genesee Brewery, Joseph L. Ernst of Rochester Board of Education, David Borlen of Yawman & Erbe, and Charles Spieler of Delco Appliance Co. W. W. Irwin was chairman of the nominating committee, and Elmer Knapp was in charge of the dinner dance.



## "OUR 67 YALE HAND LIFT TRUCKS COST A TOTAL OF ONLY \$5.00 A YEAR TO MAINTAIN", STATES WORLD FAMOUS SCREW MANUFACTURER

### Mr. Purchasing Agent:

This advertisement is addressed to you—because your job is to buy quality at the right price. We offer this as convincing evidence that you get both with YALE.

7 cents per truck per year—the customary maintenance fact story with Yale, as testified to by a renowned industrial plant.

They say, "Each unit of Yale equipment placed in service has paid for itself within a short time of purchase. Our 67 trucks cover 16 acres of floor space at a maintenance cost of 7c per year per truck."

You can cut your maintenance costs down to that too. Maybe even less—if your requirements are less rigorous. The local Yale representative has the whole story. Ask him about it.



### THE YALE & TOWNE MFG. CO.

PHILADELPHIA DIVISION, PHILADELPHIA, PA., U. S. A.

IN CANADA: ST. CATHARINES, ONT.



*Makers of Yale Hand Chain Hoists, Electric Hoists, Electrical Industrial Trucks, Hand Lift Trucks and Skid Platforms.*

APRIL 27-28

**VANCOUVER, B. C.**—Tri-State Convention of Purchasing Agents, sponsored by the *British Columbia, Washington and Oregon Associations*.

The program included the following addresses:

"The Purchasing Agent's Place in Public Relations," by Kenneth A. Knudsen of Everett Pulp & Paper Co. Discussion led by A. W. Angell of Northwestern Electric Co., Portland.

"Can Purchasing be Overcentralized?" by Edward R. Thatcher of Standard Oil Co. of California, Seattle. Discussion led by Walter McPhee of Kelly, Douglas & Co., Vancouver.

"Benefits to be Derived from Active Membership in a Purchasing Agents'

Association, by J. F. Meyer of W. P. Fuller & Co., Portland. Discussion led by H. Monroe of P. Burns & Co., Vancouver.

"Developing Purchasing Policies to Meet New Buying Conditions as Affected by Present World War, Giving Due Consideration to the Possibility of Peace," by Clifford B. Amos of Birmingham Pump Co., Portland. Discussion led by John R. Robinson of Todd Seattle Dry Docks, Inc.

"The P.A.'s Part in Establishing and Maintaining Good Will for his Firm," by Jack Reid of British Columbia Sugar Refining Co., Vancouver. Discussion led by Don Henderson of Service Bronze & Brass Works, Portland.

"Personal Purchases—the Wholesale

Bugaboo," by Joseph C. Blucher of Fisher Flouring Mills Co., Seattle. Discussion led by Fred Nowotny of Ballou & Wright, Portland.

"Budgets, an Essential," by Tom Fletcher of Pioneer Timber Co., Vancouver. Discussion led by C. R. Ragsdale of Seattle Tent & Awning Co.

Mr. G. G. McGeer, K.C., Member of Parliament, addressed the banquet meeting, Saturday evening.

Sunday was devoted to a golf tournament at the Capilano Golf & Country Club, West Vancouver, and a sightseeing trip for the ladies.



#### NATIONAL STUDY PROGRAM STRESSES CENTRALIZED BUYING

**THE NATIONAL CONSUMERS' TAX COMMISSION**, with units in 5000 cities and towns throughout the country, is devoting its current study program to the topic, "Centralized Purchasing—A Key to Lower Taxes." The program states that the average city can save from 10 to 15% of the municipal budget by adopting centralized or cooperative purchasing, that even a small town whose budget runs only about \$10,000 a year can save from \$1,000 to \$1,500 by wise buying, while potential savings are proportionately greater in larger places. The NCTC does not recommend employment of a full time purchasing officer for communities whose purchasers amount to less than \$200,000 annually, but points out that the advantages of centralization may be realized through employment of an expert buyer on a part-time basis or by consolidating purchases with those of other communities. The chief advantage of either system is stated to be the centering of buying authority and responsibility with a resultant "elimination of habits of looseness, extravagance, or downright theft."

The example of Norwood, Mass., is cited as showing the savings made possible through careful supervision. This city of 13,000 population, employing a part-time Purchasing Agent at a salary of \$1,600, is said to have saved \$3,430 in a single year simply by taking its cash discounts, while other economies totaled many times the cost of centralization.



#### RYER EXHIBITS HANDICRAFT AT HOBBY SHOW

**A FEATURE** at the fifth annual exhibition of the Newton (Mass.) Homecrafters Club last month, was the display of spun pewter pieces made by Fred Ryer, formerly Purchasing Agent for the New York Central and Boston & Albany Railroads, and senior member of the club. During the years since his retirement, Mr. Ryer has found enjoyment in his exceptionally complete home workshop. He is an artist in woodworking, making fine reproductions of period furniture with delicate inlay, and has recently turned his attention to metal spinning, making his own maple molds and carrying through the entire process on his own equipment.

## Check List for Ball Bearing Source of Supply . . . .

- WIDE RANGE OF PRODUCTS ✓
- PRACTICAL ENGINEERING HELP ✓
- PROMPT SERVICE FROM FACTORY STOCKS ✓
- BALANCED CUSTOMER LIST ✓
- TRIED AND TESTED DESIGNS ✓
- COMPLETE PLANT FACILITIES ✓



## Wide Range of Products

**FAFNIR** production is not limited to a few types of bearings to the exclusion of others. Rather, the balanced line of Fafnir Ball Bearings includes every type and size of radial and thrust bearing, precision bearing, self-aligning bearing, sealed bearing and housed transmission unit to provide the most complete line in America.

Manufacturers who standardize on Fafnirs for original equipment or replacement enjoy the benefits that come with meeting every ball bearing demand from a single source of supply. The Fafnir Bearing Company, New Britain, Conn.



## FAFNIR Ball Bearings

THE BALANCED LINE • MOST COMPLETE IN AMERICA

When writing The Fafnir Bearing Company please mention Purchasing



**1.** "AT 11:50 A.M. recently we received an order for 10 plates and one angle to be cut. Customer specified material must be in Jersey City at 1:30 P.M. the same day."



**2.** "THE MATERIAL was trucked from our Newark Warehouse to Jersey City—10 miles distant—arriving at 1:25; one hour and 35 minutes after the order was placed."



THOUSANDS of customers have discovered that when an emergency arises Scully is always ready to meet it with service to match the occasion. And our customers have also found out that regular orders receive the same prompt, courteous attention. Each of our 8 warehouses operates on the principle that our

customers always want immediate delivery—we hurry whether you ask us or not.

The next time you order steel or steel products, why not call Scully and discover why "Scully Service" is famous the country over? And ask for a free copy of our handy 1940 Stock List and Reference Book.



**SCULLY STEEL PRODUCTS COMPANY**

Distributors of Steel, Steel Products, Copper and Brass  
Warehouses at CHICAGO · NEWARK, N. J. · ST. LOUIS · BOSTON  
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UNITED  
STATES  
STEEL

When writing Scully Steel Products Company please mention Purchasing

### Blitzkrieg on Buying

(Continued from page 66)

standpoint, the procurement officers have no accurate or recent knowledge whether any purchases have been made against a contract, or whether purchases far in excess of the contract quantity have been made. Either situation would be a guide to actual requirements and to better purchasing. We are told of one item, contracted for on the basis of an annual consumption of 300 dozen, on which actual consumption in recent years has run as high as 35,000 dozen. The one person in possession of this information is of course the supplier who has the contract. It is not reasonable to suppose that a favorable contract can be made with

such a discrepancy in quantity, nor that the competition of other potential suppliers, based on the nominal contract quantity, can be a serious factor in any negotiation to improve the present arrangement. *We propose:* an immediate spot check of contract disbursements for the latest available period, to provide accurate data as to the use of contracts in the General Schedule of Supplies, and the necessary factual basis for carrying on this activity of procurement; and a requirement that current purchase orders be reported to the Procurement Division promptly as a guide in contract negotiations and as a means of controlling "the field activities of a general procurement service." Basically, a change in organiza-

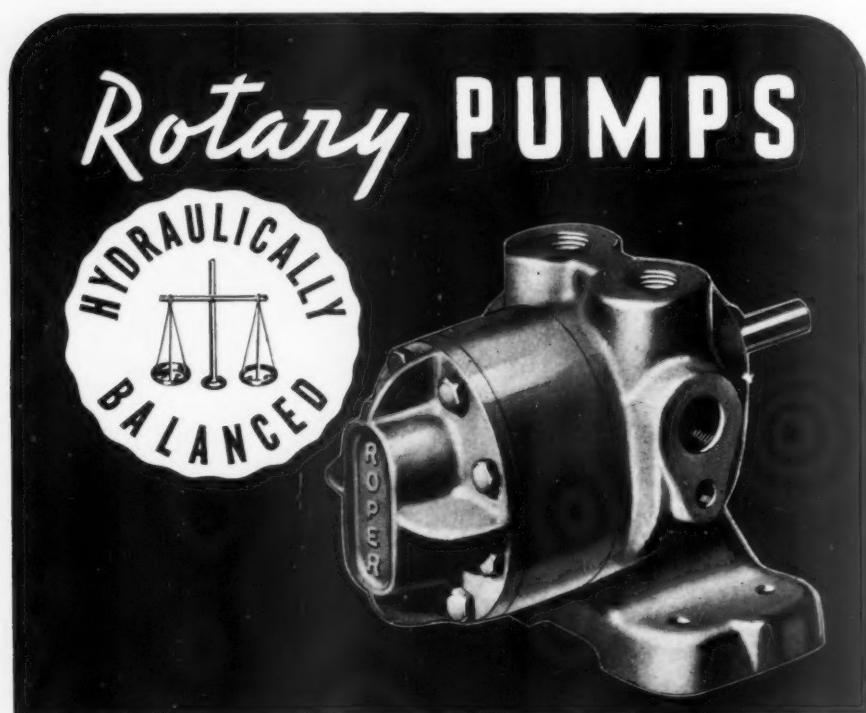
tion that would provide disbursing officers closely coordinated with field procurement offices, on a state or regional basis, would seem to be the most effective means of expediting and controlling the program.

*Items 2 and 3.* Term contracts effected by State Procurement Offices and other Government departments, when favorable, should be utilized. But the broad use of such contracts as proposed in this order constitutes a delegation of the responsibility for procurement that is not in accord with the principle of centralization. The Burland Printing Co. case in New York State, where T.E.R.A. orders were issued against a State printing contract, illustrates some of the pitfalls of this situation. Evidence thus far produced tends to show that the contract had been changed without knowledge of the T.E.R.A. buyers, who consequently didn't know the terms of their own purchases, and the lump sum invoices were utterly incapable of any audit for payment. *We propose:* that all such contracts, if used in federal purchasing, be made in fact contracts of the Procurement Division, a matter of record in the procurement offices and subject to full control.

*Item 6.* Two essentially different functions — specification and procurement — are here confused, and all responsibility for procurement is again relinquished. The problem is not peculiar to governmental buying. Industry faces it every day, and meets it by cooperative preparation of specifications to meet both the technical and commercial need, making possible effective purchasing based on technical counsel from the using department. *We propose:* that the work of specifications and standards be coordinated as between buyers and users, following successful commercial practice without abdicating centralized purchase and control.

*Item 7.* The exception based on product cost alone is a solution that solves nothing. In commercial practice, the limitation on cost per item generally works the other way, requiring additional executive authorization for exceptionally large purchases, and exempting only the very minor items which are specified for local purchase or those required for an unpredictable emergency.

The exemption here set up ignores the fact that one of the greatest opportunities for centralization exists in the consolidation of purchases of less than \$100 and placing them upon a quantity basis. Under the system now established, the tendency will be in the opposite direction, with purchases deliberately made in smaller quantities so as to come within the exempted limit. There is a strong temptation and an easy routine provided for evading the whole intent of the centralized program. This is not theory; it is happening every day where this monetary limitation is in effect. Within the past few weeks we have received information regarding purchases in Oneida County, New York, where a comparable situation exists in that purchases of less than \$500 are exempted from the requirement of com-



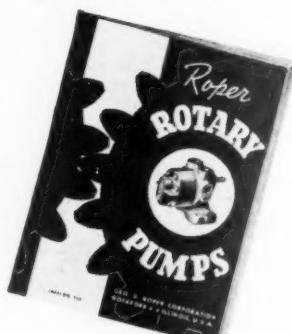
### EQUALIZED INTERNAL PRESSURE

Hydraulic balance, a feature of the new line of Roper Rotary Pumps, equalizes internal pressure at all points and absorbs all shock or thrust from power end of drive shaft. Containing over 7000 different units, the line includes pumps of 1, 3, 5, 10, 15, 20, 35, 75, 100, 150, 200, 300, 500, 750, and 1000 gal. per min. capacities at speeds up to 1800 r.p.m. and against pressures up to 1000 lb. per sq. in.

Twenty-one different drives and mountings are available ranging from ordinary foot, hub and flange mounting heads to complete bedplate units for direct motor drive; gear reduction; or flat or V-belt drive.

Choice can also be had of spiral, spur or herringbone gears; conventional packing box, spring loaded packing box or mechanical seal; sleeve or roller bearings; or built-in or external relief valve.

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Write for  
Catalog 937

**ROPER** *Rotary* **PUMPS**

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petitive bidding. State auditors found an airplane for the Aviation School in Utica, bought in parts none of which cost more than \$490 individually though the complete delivered airplane represented an expenditure of \$1,515. We may expect a rash of similar breakdowns of requisitions and division of quantities in federal purchasing, technically within the present ruling but distinctly contrary to good purchasing practice.

The ruling to have estimated cost rather than actual cost govern gives wise flexibility to an otherwise rigid policy, but it serves to demonstrate further the basic unsoundness of the plan. Estimates of cost can be in error, both on the part of the requisitioner and of the buyer. A low estimate can be used to establish a classification for local, decentralized purchase. It can also be used to embarrass the procurement division, for if the quotations turn out to be higher than the estimate on the requisition, for which funds are presumably available, there will be a long delay entailed by going back to the using department for a revision of the estimate, reopening bids, and double work for the procurement division. Such instances, whether deliberate or not, are cited as discrediting the practicability of central buying, ignoring the fact that real procurement authority would have avoided the occurrence from the start.

Central purchasing for all governmental agencies is a big assignment, but it can be accomplished on the basis of existing procurement machinery. Not, however, with the approach demonstrated in this bulletin of instructions. The practical approach is not to start with exemptions based on a monetary limitation, or the character of supplies, or for particular using departments which open the way for pressure groups and the eventual breakdown of the whole idea.

It can be done by concentrating successively on certain commodity groups where centralization has been proved practicable, attaining the maximum centralization in such groups, and then proceeding to extend the system until a representative proportion of supplies are really under central control. For example, food supplies for all agencies could be used as a starting point. Exemptions could be limited to specified items such as perishables and local crops, whereas the great bulk of purchases could be standardized so as to raise quality and lower costs materially throughout the system.

Centralized control could be attained by requiring all purchases to clear through Divisional Procurement Offices or the central Procurement Division in Washington, with no loss of time and with an immediate accumulation of data in simple form that would permit the formation of a consistent purchasing program. It would be most effective if supplemented with divisional disbursement offices, not necessarily divorced from the Controller General's office.

The ship has been scuttled before the voyage is begun.

## MAYBE YOU CAN'T SEE A DIFFERENCE IN ABRASIVES



Your eyes may not appreciate the uniformity of grit, the strength of specially-developed binder, the rugged, correctly-flexed backing and permanent joint of an AP endless belt...

## BUT LOOK AT THE DIFFERENCE IN SERVICE!

Abrasive Products, Inc.  
South Braintree,  
Mass.

Gentlemen:

At 4 P.M. on February 13th we gave your Mr. Law an order for one sample and to endles belt asking him to rush all possible and to our great surprise and pleasure, same arrived the following morning, today, at 9:30 A. M.

We wish to thank you most sincerely for this

**M**AYBE it will "surprise and please" you, too, to discover that there is *one* coated abrasive manufacturer set up to give you 24-hour action on orders — 48-hour action on "specials" — a manufacturer who will break his production schedule so you won't have to break yours!

We know that our experience and high manufacturing standards will produce better coated abrasives, and we're willing to prove it the best way we know... but we also know that many's the time an abrasive user is more interested in fast service than anything else. So, if even a Free Trial Offer won't tempt you, keep AP in mind for the next time you need abrasives — quick. Then climb aboard the AP Express and learn the meaning of Service! Abrasive Products, Inc., 523 Pearl Street, South Braintree, Mass.

### \* CUT YOUR FINISHING COSTS! WE TAKE ALL THE RISKS...

Order a ream or 50-yard roll of the coated abrasive that meets your needs. Use up to half. If it hasn't reduced your finishing costs, return the unused half to AP and *no bill* will be sent. Reach for this saving now!

**ABRASIVE**  **PRODUCTS**

SOUTH BRAINTREE MASSACHUSETTS

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### AN ADVERTISING MANAGER DISCUSSES MODERN BUYING



**Charles Chamberlain**  
Jenkins Bros.

Factor in Marketing." In his article, Mr. Chamberlain traces the development of the purchasing function in industrial organization, giving a high tribute to

In the April issue of *Industrial Marketing*, Charles C. Chamberlain, advertising manager of Jenkins Brothers, valve manufacturers, discusses "The Purchasing Agent

the importance and efficiency of the modern purchasing department. He makes the point that marketing technique must recognize these changes and adapt itself to the conditions of today. In conclusion, he cites some of the marketing policies of his own company, showing how a successful and progressive manufacturer can work effectively with the buyer:

"We, therefore, instruct our salesmen to always work with and through the purchasing department when calling on customers and prospects. We recognize that this has become an extremely important factor and is an influence even on the sale of highly technical products. In short, new individuals must be recognized and dealt with in selling to industry, and we must be constantly on the alert to adapt our sales and advertising plans to ever changing conditions."

"It is interesting to note that the purchasing agent no longer is oblivious to quality and that in most cases the purchasing department, working in conjunction with the engineering, production, and operations departments, study maintenance costs, plant shutdowns, labor and other factors usually of more importance than first cost. At the same time, most purchasing agents recognize the necessity of cooperating with these other departments in an effort to purchase wisely, efficiently and economically.

"In all of our advertising and sales promotion activities directed to the purchasing agent we make sure that our story is logical and that it will appeal to the purchasing executive's sense of reason. We do not find it particularly difficult to address the members of this profession. They are first, last, and always, human beings, just the same as architects, consulting engineers, chemical engineers, superintendents, operating men and others to whom we regularly send out promotional material.

"In the last analysis, purchasing agents are interested in new products, industry developments, economical plant operations. Then, too, they are extremely interested in the integrity of the manufacturer, his general manufacturing and sales policies, ability to render prompt service, and to make satisfactory and reasonable deliveries. Our experience tends to prove conclusively that these are the important factors which should be stressed. They are the points that we find it expedient to talk about and to enlarge upon."



### CENTRALIZED PURCHASING WOULD IMPROVE DEPARTMENT EFFICIENCY

A RECENT SURVEY of the Department of Public Works at White Plains, N. Y., made by the National Municipal League, finds that department to be a highly efficient unit, and the report of the study is highly commendatory, with few suggestions for improvement. It is significant that one of the few recommendations for reorganization or change, was that the Commissioner be relieved of his additional duties as City Purchasing Agent, a move that is believed to be one way of improving an already commendable record. The recommendation is worthy of special notice in that it points to one of the basic reasons, often overlooked, for centralization of purchases as a specialized function. Not only does it work toward an improvement of purchasing, but it permits operating men and other executives to specialize in their own proper fields and consequently to do a better job as production, engineering, financial or administrative men.



**William C. Brooks** has resigned as District Purchasing Agent of the Standard Oil Co. of California, Los Angeles, to join the Petroleum Equipment Co.

Dog-eared forms and drooping index cards are the surest evidence of excessive machine bookkeeping costs. They mean your expensive equipment and trained staff are being hampered by inadequate paper. It will pay you to investigate these two papers made especially for machine bookkeeping forms and card records.

### WESTON'S MACHINE POSTING LEDGER

**For Forms.** One-way grain direction makes forms stand straight — special finish is smudge-proof, clean-erasing — forms are easier to sort and file. Made in Buff, subs. 24, 28, 32 and 36 and in White, Blue and Pink, sub. 32. 50% rag content.

### WESTON'S MACHINE POSTING INDEX

**For Cards.** Its ledger finish provides excellent writing, erasing and typing qualities. Tabs retain their snap. Made in Buff, White, Blue, Ecru, and Salmon in 180 M, 220 M, 280 M and 340 M and in Pink 180 M (basis 25½ x 30½).

Specify Weston's Machine Posting Ledger and Index when ordering machine bookkeeping forms and index cards.

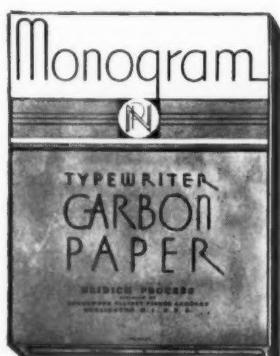
### FOR PAPER BUYERS

Read *Weston's Papers*, a magazine of news and information for paper buyers. Sent free.

Write **BYRON WESTON COMPANY, DALTON, MASS. Dept. H**

When writing *Byron Weston Company* please mention *Purchasing*

*"The Line of Lowest Ultimate Cost"*



## CARBON PAPERS INKED RIBBONS

**FORTY YEARS OF EXPERIENCE** in the production of **QUALITY CARBON PAPERS AND INKED RIBBONS** is the basis of the "**PLUS REQUIREMENTS**" of The Neidich Line. **OUR TRAINED FIELD REPRESENTATIVES**, experienced in solving machine requirements, will serve you. **USE THEM TO YOUR ADVANTAGE.**



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*Scientific handling of carbon and ribbon applications is our function.*

Let us prove that ours is "**THE LINE OF LOWEST ULTIMATE COST.**" Drop us a line and **HAVE OUR CARBON AND RIBBON SPECIALISTS PROVE THIS TO YOUR SATISFACTION.**

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### INSURANCE BUYERS MEET IN ATLANTIC CITY

A review of the most pressing problems now facing the insurance management departments of industrial companies features the annual Spring meeting of the Insurance Division of the American Management Association, May 6 and 7, at the Hotel Traymore, Atlantic City, N. J.

The Conference, which annually attracts hundreds of insurance buyers and underwriters from various industries, covers a broad array of topics, such as boiler and machinery coverage, bonding, fire insurance, Social Security, liability,

and compensation, self-insurance, and many other subjects.

The program, as announced by Ralph H. Blanchard, Columbia University School of Business, Vice President of the Association's Insurance Division, opens with a questions-and-answers session, presided over by Mr. Blanchard. Members of the Association are submitting questions for discussion at this session by various authorities. These authorities include: Dale F. Reese, Vice President, The Hartford Steam Boiler Inspection and Insurance Company; John C. Brodsky, Secretary, Fidelity and Casualty Company of New York; Paul J. Kennedy, New York; G. T. Crisp,

Vice President, American Mutual Liability Insurance Company; F. H. Deckman, Insurance Engineer, Columbia Engineering Corp.; John J. Corson, Director, Bureau of Old-Age and Survivors Insurance, Federal Security Agency, Social Security Board.

On Monday afternoon, there are four concurrent sessions, each in charge of an insurance buyer, aided by a technical adviser. The topics for these sessions are: boiler and machinery coverage, bonding, fire insurance, liability and compensation. On Monday evening, W. J. Graham, Vice President, Equitable Life Assurance Society of United States, addresses a dinner meeting on "Keeping Up to Date on Group Insurance."

On Tuesday morning, Kenneth C. Bell, Second Vice President, The Chase National Bank, speaks on "The Bank and its Customers' Insurance," and J. W. Myers, Annuity and Benefit Department and Insurance, Standard Oil Company of New Jersey, discusses "When is Self-Insurance Practical?" The discussion leaders are J. H. Mears, Treasurer, Brown, Crosby and Company, Inc., and L. J. Ronder, Manager, Insurance Division, Continental Illinois National Bank and Trust Company.

The concluding session of the Conference on Tuesday afternoon considers revision of the standard fire insurance policy, based on a paper on this subject by Reginald Fleming, Insurance Manager, Commonwealth & Southern Corp. Discussion leaders are Chase M. Smith, Secretary, National Retailers Mutual Insurance Company, and Clayton G. Hale, The Hale & Hale Company.



#### "POP" HALL IS HONORED

**THE ANNUAL DINNER** of the Gaveliers Club, comprised of former officers of the New York Purchasing Agents Association, held April 11th at the Builders Exchange Club, took the form of a testimonial to W. T. "Pop" Hall of the N.A.P.A. headquarters staff. Mr. Hall has been actively associated with purchasing work for thirty-six years. As Purchasing Agent for Brewster & Co., he was one of the little group of pioneers responsible for the organization of the New York Association and the N.A.P.A. He is a past president of the former group and served as first treasurer of the national organization. Among the sixty men present at the dinner were many who were his co-workers in those early days. R. W. Hafner, formerly Purchasing Agents for the Standard Varnish Co., and Chairman of the Gaveliers, presided at the meeting, and John K. Conant of General Printing Ink Corp. was toastmaster.



#### FORKNER RESIGNS

**ALVIN M. FORKNER**, recently appointed City Purchasing Agent at Middletown, Ohio, resigned from that post April 30th, differing with the purchasing and financial policies of the City Manager. He has been in the municipal service since 1936.

# PAGE FENCE



### WE'VE STREAMLINED EVEN THE POSTS

For years fence posts have been merely adaptations of existing structural shapes. But now Page has developed a line post for chain link fence exclusively—the "wing channel" post. This new post provides greater strength, longer life and neater appearance. Properly erected on these superior posts, your Page Fence is up to stay—a guaranteed job.

Proper erection is a fetish with Page—one of the important reasons why there are 97 factory-trained, long-experienced Page Fence distributors and erectors in 97 cities. Each is a local business man who is a thoroughly responsible fence engineer and has a reputation to maintain.

Write to PAGE FENCE ASSOCIATION, Bridgeport, Conn., Atlanta, Chicago, New York, Pittsburgh or San Francisco for illustrated book, "Fence Facts," and name of the Page representative nearest you, who will gladly consult with you concerning fencing for any purpose. He will tell you of the four metals in which Page Fence is available and other factors of importance.



A PRODUCT OF PAGE STEEL & WIRE DIVISION—AMERICAN CHAIN & CABLE COMPANY, INC.

See ACCO advertisement in this issue, page 6

*America's First Wire Fence — Since 1883*

When writing Page Fence Association please mention Purchasing

## What Has Happened to Strategic Materials?

(Continued from page 65)

paratus. Some authorities call the last use the most important where it is used for sights, supplementing optical glass. Brazil is the chief source of supply, particularly the state of Minas Geraes which is well known to American importers of coffee and various other minerals.

According to the United States Bureau of Mines the United States normally imports from five to six tons a year, which seems small to those who deal habitually in figures pertaining to the baser minerals and metals.

The *Engineering and Mining Journal*, through its market quotation subsidiary, *Metals and Minerals Markets*, H. T. Wanders, editor, states: "We have been quoting quartz rock crystals ever since last September at \$100 to \$150 per ton on fusing material. Prisms for piezoelectrical and optical use command a premium."

The leading sellers at New York do not quote flat prices, as so much depends on the requirements of the consumer. The market has changed but little since the outbreak of the war.

On Feb. 14 the Procurement Division of the Treasury Department bought 7,000 pounds of quartz crystals under the provisions of the Strategic Materials Act. Perhaps the details of the purchase will be of interest. The American Gem & Pearl Company, New York, was awarded 200 pounds at \$5.30 per pound and 600 pounds at \$6. The Brazilian Trading Company, New York, secured 4,500 pounds at \$6.15 per pound. The Pan American Trading Company was awarded 100 pounds at \$5.50 per pound. The Southern Cross Trading Corporation, New York, agent for J.M.A. Robinson, Rio de Janeiro, was awarded 2,000 pounds at \$7.00.

Delivery of the crystals was specified to be made within six months at the Navy Yard, Washington, D. C. The prices paid are said to have been in line with the general market.

Mining of the crystals is primitive, the Bureau of Mines states. An exceptional rock crystal was shipped to the United States about two years ago, weighing 63 pounds, valued at \$1,100 or about \$18 per pound.

Radio men describe the crystals as used to filter out certain unwanted radio frequencies, but when they elaborate they become too technical for the average layman.

### Chromium

Long before the Strategic Materials Act was passed the War Department had listed chromite (the ore from which metallic chromium is obtained) as one of the four mineral commodities constituting the first priority class for stockpile reserves. The steel industry accounts for three-fourths of its domestic consumption and it is the principal alloy-

ing element in stainless steel. It is also important for plating steels (where it appears only on the surface in contrast to permeating the entire mass in stainless steel); is used for making refractory brick in steel making furnaces and is used in the chemical industry, principally in the dyeing, tanning and pigment branches.

Imports of chromite in 1938 totalled in gross 352,085 tons (with a chromic oxide content of 163,570 tons) as against 553,916 tons the previous year, while domestic production in 1938 was only 812 tons, gross, as compared with 2,321 tons in 1937. Hence chromium is in a class with tin from standpoint of paucity of home production.

The entire local production in 1938 came from three counties in California—Eldorado, Placer and Napa. The 1937 figures had been all-time records, both for home production and imports, that having been a banner year for our steel industry.

In 1938, 168,299 tons came from Africa, while the Philippine Islands, a newcomer in the field, stood second at 78,233 tons as against nil as recently as 1934. Cuba, New Caledonia, Turkey and Greece were among other sources. Of the principal imports in 1938, New Caledonia ore had the highest content of chromic oxide (54%) and those from Cuba the lowest (32%).

At the outbreak of the war chromite



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ore from British India was quoted at \$18 to \$19 per long ton for the grade which contained 48% chromic oxide, while on April 18 last the price had risen to the range of \$25 to \$26 per ton, which is perhaps not an exorbitant rise since this is such a strategic material.

It is noted that imports come from unusually long distances and the nearest ore, that from Cuba, is unfortunately the leanest and therefore less desirable. Moreover there is the chance that in the next few years chromium will be used on a far larger scale than ever before. Usually stainless steel is made in the electric furnace which is used for making quality steels. However the trade journal, *Steel*, reports that a new process has been developed whereby the chromium can be introduced into an ordinary open-hearth furnace and hence stainless steel would become a bulk product, and would be made on a large scale, taxing chromium resources to the utmost.

The Procurement Division of the Treasury Department has announced that a purchase of 25,000 tons of chromium ore is to be made on May 7th, bolstering our supplies in hand.

**Tungsten**

Tungsten is listed as a strategic commodity but the position of the United States with regard to this essential material is far less vulnerable than that with respect to manganese, tin, or chromium, states the United States Bureau of Mines. Apparently the United States was the second largest world producer in 1938, domestic output having been the highest of any years before and since the war years of 1916 to 1918.

The principal uses of tungsten are in the manufacture of high speed tool steels, cemented tungsten carbides, stellites and electric light and radio tube filaments; in the preparation of various chemicals, such as pigments; and in the tanning of white leather. A new alloy of tungsten with 4% copper and 6% nickel is said to be suitable material for radium containers.

Since 1900 the United States has imported some tungsten in the form of alloys or ore each year, and even though domestic production has nearly equaled or even exceeded apparent consumption during a few years, dependence on foreign sources has tended to increase, states the Mines Bureau. From 1933 to 1937 domestic production has been about half of the apparent consumption.

Most of the attempts at domestic production is confined to eleven Western states, of which Nevada, California and Colorado yield more than 90% of the total.

Imports of tungsten ore and concentrates in bulk came to 322,085 pounds in 1938, with China furnishing 138,380 pounds, British Malaya 108,765 pounds and Africa 45,069 pounds. These bulk imports of 322,085 pounds had a net tungsten metal content of 162,744 pounds, or 81 tons.

Now, to switch to tons for simpler comparisons, our imports fell off tremendously in 1938, probably because of

the Japanese invasion of China. In 1937 our total imports had been 2,848 tons during the year that our own production was 3,500 tons. In 1938, however, our imports were only 81 tons, while domestic production had increased to 4,000 tons. Hence it would seem that our production works somewhat automatically. When imports decline our home production rises. There are of course many American tungsten mines which can operate only during periods of high prices such as during a war.

Prices have risen about 25% since the start of the war. Thus at the start of the war Chinese wolframite (the terminology of tungsten ore) was quoted at \$18 to \$19 per unit of  $WO_3$ , duty paid. On April 18 the quotation was \$23.25 per unit. Domestic scheelite was quoted at \$16 to \$18 per unit on Sept. 1, 1939 as against \$22 to \$23 on April 18.

The Procurement Division of the Treasury Department is known to have bought fair supplies of the metal. For several years, too, the Navy Department has been hoarding certain quantities. Supplies in private hands are believed to be considerable.

#### Aluminum

Aluminum shares the distinction with tin of being the only strategic materials which are actually lower in price than when the war started. Only a few weeks ago the price was reduced one cent per pound to 19 cents for the ordinary ingot metal, whereas on Sept. 1, 1939, the price of 20 cents ruled. This might suggest the question: "Who's afraid of the big bad wolf"—the wolf in this case being the foreboding dread of scarcity which haunts many a nation today in some commodity or other.

For the third time in the last five years the production of aluminum in Germany in 1938 surpassed that of the United States. In that year Germany contributed 29% of the world's total, the United States, 23%. Canada, Russia and France ranked next in importance as producers.

It was classed as one of the strategic materials chiefly because of the limited quantities of commercial grade bauxite (the ore) available in the United States. Bauxite is produced chiefly in four of our states and the total production in 1938 was 323,818 tons, imports that year totaling 455,693 tons and apparent consumption for the year having been 689,170 tons.

Its strategic nature is realized by the fact that the aircraft industry is one of the largest users in the construction of both bodies and engines. It is also used widely in the chemical industry, needed in war for the manufacture of explosives and industrial chemicals.

Germany doubtless uses aluminum for war purposes more than any other nation because of the abundance of that metal and scarcity of other metals such as copper. Thus the German infantryman is a veritable walking storehouse of aluminum, which forms his canteen, cartridge holders, various kits, utensils,

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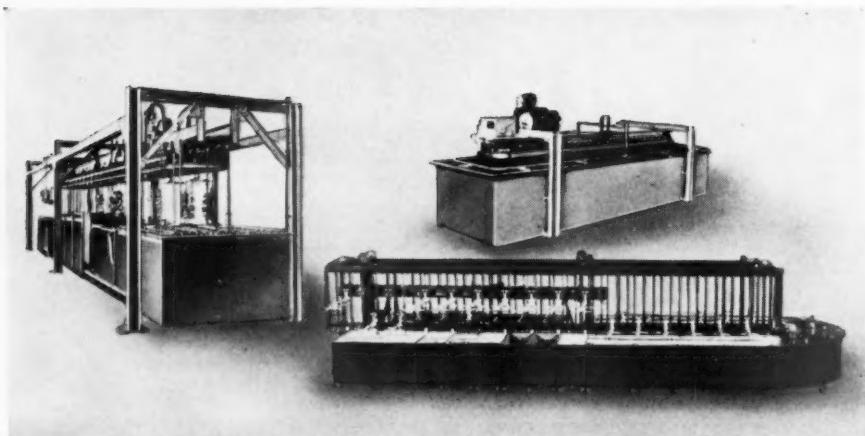
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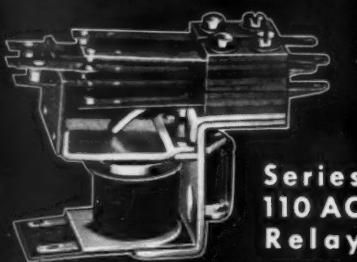
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etc. At that, he may be more lightly equipped than the American counterpart with his heavier brass and stainless steel equipment, though the tendency is to switch to aluminum.

World consumption of aluminum in 1937 totaled 501,700 metric tons, a 26% increase over 1936. In 1938 Greater Germany consumed 161,000 tons; the United States 81,213 tons; the United Kingdom, 66,000 tons; Russia 56,000 tons; Japan 40,000 tons; France 30,000 tons and Italy 28,000 tons. The United States was the only large world consumer in 1938 to show a decline, and by 47%.

One does not have to speculate much about supplies in this country and availability of further supplies should we be drawn into a war, since the Army and Navy Munitions Board has removed aluminum from the list of strategic materials and placed it on the critical materials list.

In the manufacture of aluminum, cryolite is needed, which occurs in commercial quantities only at Ivigut, Greenland. In view of the seizure of Denmark by Germany this becomes of increasing concern to the United States. Cryolite is also used in the manufacture of glass and enamels and in certain insecticides. Total imports in 1938 were 12,115 tons, of which 11,708 tons came from Greenland.

### Mica

The strategic uses for mica are principally in the electrical field, being a



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well-known insulator. Non-strategic uses are for making wall paper, paint, roll roofing and artificial snow for Christmas tree decorations. Mica is an important material in the manufacture of radio receiving and broadcasting equipment.

For many years mica has been considered one of the few materials for which no acceptable substitute was available in many of its principal uses. Recent laboratory research indicates that a product, Alsifilm, made from bentonite, may compete successfully with mica in the important electrical field, if it can be produced commercially. Another challenge to sheet mica and mica splittings may come from properly processed ground mica, though this development seems to be less far advanced than Alsifilm.

Figures of imports and domestic production might make it appear that almost four times as much mica was produced in 1938 than was imported. This is true with respect total tonnage but actually the United States seldom produces as much as one third of its requirements of sheet mica (larger than  $1\frac{1}{2}$  by 2 inches) and only a negligible amount of its requirements of splittings.

The bulk of the domestic output is scrap, ground mica, schist and by-product mica, although American mines produce almost enough punch and circle mica, used for making washers and small radio stampings, to meet domestic needs.

Mica seems to have been the first mineral mined in North America. Thousands of tons of debris on the dumps testify to the extent of the ancient workings operated by western North Carolina aborigines. The mica ornaments left by Ohio Valley mound builders revealed that primitive peoples prized it as ornaments and regarded it highly for medicines and charms. The first American mine operated on a commercial scale was the Ruggles in New Hampshire, about 1803, to provide "isinglass" for stoves. Gunboat windows contained it since ordinary glass would have shattered.

The total production of uncut sheet mica and scrap in the United States in 1938 was 20,727 tons while imports totaled 5,761 tons, the latter representing the high quality product. Imports from British India in 1938 totaled 6,523,459 pounds; from the Union of South Africa, 1,473,550 pounds and from Canada, 1,104,521 pounds.

Mica is marketed in four classifications: Cut or uncut block, sheet, splittings and wet- or dry-ground. The value depends on the size of the flat sheets into which it can be split and on whether it is clear or stained. At least 100 distinct products can be classed as unmanufactured mica.

Any standard pricing system is difficult because of the many descriptions. In the main, prices differ but little from year to year and are said to have risen but little if any since the war started. Production in this country centers in North Carolina, New Hampshire and South Dakota.

The large electrical manufacturing companies are said to have large stocks

of the choicer material on hand since it comes from so far away. It is said that the Army and Navy have also accumulated substantial quantities.

#### Coconut Shell Char

Charcoal made from coconut shells was developed during the world war as the chief absorbent material for gas mask canisters. However the Army and Navy Munitions Board, Commodity Division, informs us that "it is believed that within the next year large scale production of an entirely satisfactory non-coconut charcoal for gas mask canisters will be available and thus eliminate this now strategic material from the list."

Whereas most strategic materials are for use of the armed forces, coconut shell char is consumed during war times in equal proportions among the civilian

populations. Even the well dressed canine in England has his gas mask. Though the use of gas in the present war has not been resorted to, no country liable to attack would dare go without this important military and civilian defense material.

The char is made by firing the coconut shells in a confined space with little or no oxygen, the usual process for charcoal manufacture generally. Coconut shells are of course produced in most tropical countries and islands. However a large portion is burned as fuel in the drying of the coconut meat to produce copra. Coconut growth is confined to tropical sea areas because both saline water and tropical climate are necessary for productive trees.

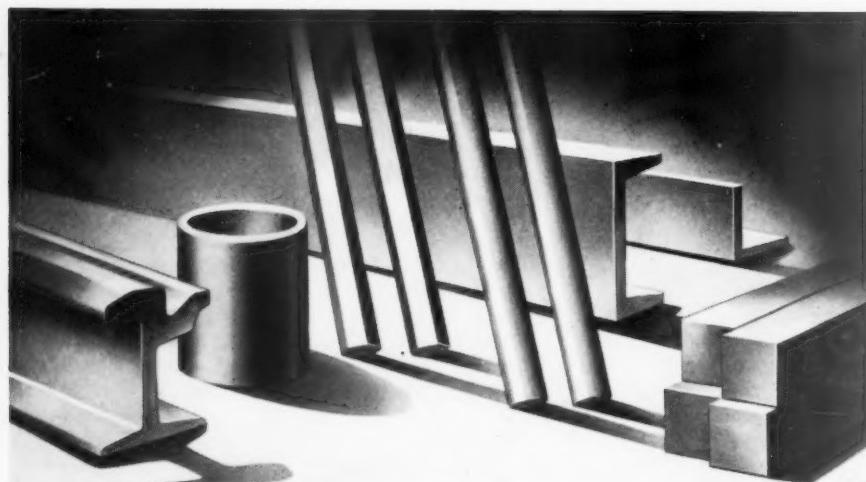
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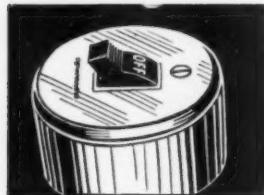
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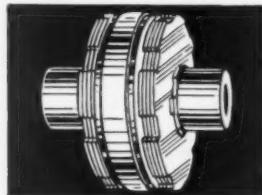
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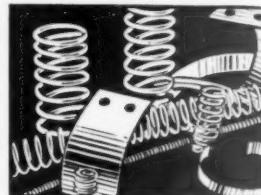
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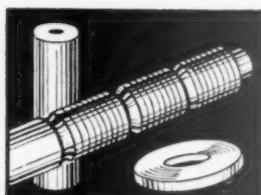
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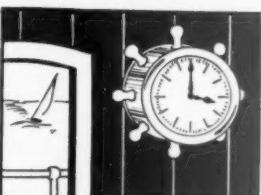
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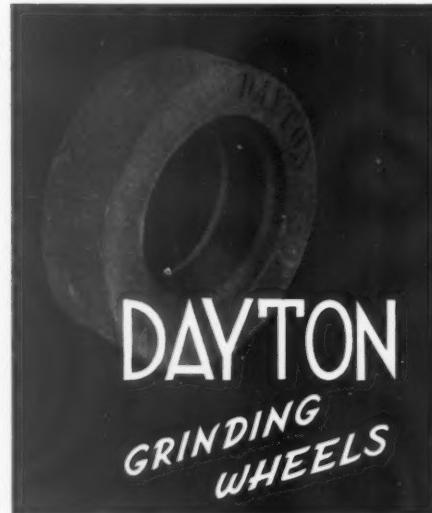
materials which are abundantly available. Naturally our Army and Navy are not revealing much concerning these substitutes.

There are no established market prices for this char, being a very restricted market as to variety of uses. Suffice it to say, however, that the law of supply and demand has made present prices highest since the world war, though the constant threat of substitutes has kept prices within bounds. Prices are subject to individual negotiation between Government and owners of the coconut plantations.

### Nickel

The value of nickel as a strategic material was impressed on the minds of the generation contemporary with the world war when, before United States entrance into the war, the powerful German submarine, *Deutschland*, arrived at our shores to load up with nickel to carry back to the fatherland. With this nickel the Germans made alloy steel from which guns, rifles, submarine parts and hundreds of other munitions of war are fabricated.

Canada supplies from 85 to 90% of the world's nickel and there are many who maintain that for this reason nickel should not be classified as a strategic material. As one authority expressed it, Canada is one of our best friends. We have no forts along the Canadian boundary. We are bound to protect Canada from foreign invasion under the Mon-



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roe Doctrine. So why worry about nickel supplies?

Apparently Washington agrees with this concept since neither the Treasury Department, the Army or Navy, nor the International Nickel Company are hoarding the metal. There are considerable stocks of nickel in the United States at all times as this nation is the largest user of the metal. Thus of the world consumption of 92,500 tons in 1938 the United States used 23,400 tons, with Russia in second place at 17,300 tons.

Steadiness of supplies of nickel in the United States is assured by the steadiness of price. The price of nickel has been unchanged at 35 cents per pound for ingot metal since 1926. No other metal has had such a record of price steadiness. There would be no Purchasing Agents, perhaps, if all commodities were as steady.

States an authority who prefers to be unnamed "Wars could certainly be conducted without nickel, but certainly a material that increases the strength, shock resistance and corrosion resistance of metals must be considered important in the modern war with the great dependence on mechanization."

Domestic production of primary metal in 1939 was only 416 short tons, while 2,300 tons more was produced from scrap nickel. Hence our need for imports is apparent. Among the substitutes are chromium, molybdenum or vanadium. In fact these have been critics of our "moral embargo," which provides against shipping molybdenum and tin to nations which bomb women and children. Critics claim that as long as nickel and other metals may be shipped, the ban on molybdenum, etc., is inconsistent. However the metallurgists are very precise in their needs and when they insist on any metal, such as nickel, for their alloys, they really need it.

When the present war started, various publications were satisfied that the United States is well fixed as to nickel. The *Wall Street Journal* stated: "International Nickel Co. of Canada is believed to have adequate capacity to take care of the British Empire and the United States needs." The *New York Times* said: "There is plenty of nickel just across the border in Canada." The *American Metal Market* commented: "With the world's main supply of nickel only a few miles from Buffalo, there is no doubt of our nickel supply."

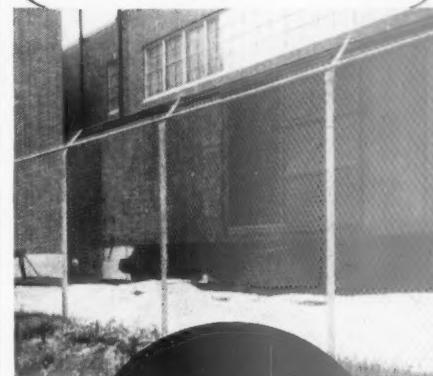
Will nickel, too, be removed from the strategic list and be placed on the list of critical materials, we wonder?

#### Optical Glass

In February it was announced by the Army and Navy Munitions Board that optical glass had been removed from the list of strategic materials and placed among the critical materials, implying less urgency and concern over supplies. The glass is used by the military in the various optical systems of instruments such as range finders, periscopes, telescopes, binoculars and in that comparatively new war use, for bomb sights.

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Until the world war, all such glass was imported, chiefly from Germany. Experiments towards its manufacture began in this country in 1912 and resulted in the production of some types here in 1914 and 1915, production brought on by the pressure of the world war. Full production was being accomplished in the United States by 1918.

In some types of glass the United States can produce the best optical glass in the world. The glass is made of silica, potash, lime with various metallic oxides, all of which materials are abundant in the United States and none of which are imported.

The Bausch & Lomb Optical Company and the Pittsburgh Plate Glass Company are the principal manufacturers of such glass in this country. It is known that our Government branches, such as Army and Navy, have been buying substantial quantities for a war emergency, though details as to quantities are military secrets.

Total supplies in this country are difficult to estimate, states an authority on the subject. The main point of assurance is that technological knowledge and present capacity are capable of coping with any emergency placed upon them, which is contrary to the situation during the world war. It is probably because of these factors that the item was removed from the strategic materials list. Importations since the world war have not been large because of the American self-sufficiency; hence even if they should be cut off entirely they would not be sorely missed.

Optical glass is of course not a common or popular commodity whose prices are quoted regularly in the trade journals and business papers. A manufacturer tells us that prices have not been affected by the recent war in Europe. Those who are interested further in the subject are referred to an article in the *Scientific Monthly* for April, 1940, page 323.

1 1 1

### Obituary

Wallace T. Hooper, 42, Assistant City Purchasing Agent at Memphis, Tenn., died of a heart attack, March 30th.

George L. Brock, 72, for 23 years Purchasing Agent of the Morgan Lithograph Corp., Cleveland, died at the La Salle Hotel in that city, April 12th.

August Warnecke, 68, Purchasing Agent for the California Barrel Co., San Francisco, died at his home in Berkeley April 17th, after a brief illness.

John Rollo Johnson, 60, formerly Purchasing Agent for the Cudahy Packing Co. at Sioux City, Iowa, died in Chicago April 20th.

Everett W. Smith, 47, for the past six years Assistant City Purchasing Agent at Rochester, N. Y., died April 25th after a brief illness.

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### TRADE BARRIERS

Addressing the International Purchasing Agents Conference at Niagara Falls last month, George A. Renard, Executive Secretary of the National Association of Purchasing Agents, pointed out the many restrictions to trade—tariffs, currency blocs, economic self-sufficiency, and the obstruction to free trading even within the country by State enactments designed to keep business at home and prevent the inroads of "foreign" trade—in this case defined as trade from other parts of the United States.

The World War, said Mr. Renard, demoralized the previously existing finance systems, and afterward the various countries went further than before in preventing competition and imposing trade restrictions.

"Then we resorted to two fast plays to get out of our situation," he declared. "We made loans to bankrupt nations without much hope of return. And then we bought gold and silver at prices different from their economic value. It's a game that can't go on when one player has all the chips, unless he's in a position to stake all the other players in the game. That's what we have been doing."

Mr. Renard's address was based on the two alternatives which have been stressed by Henry A. Wallace, secretary of agriculture. These, he said, are either free trade or economic self-sufficiency by the exclusion of imports.

The most recent development "of the United States' high protectionist policy of past years is a crazy quilt money juggling by the nations so that the countries of the world are aligning themselves in four or five groups, with the United States on the outside," he said.

Wallace's figures showed that 150 years ago it took 19 persons on a farm to support themselves and one additional person, Mr. Renard said. By increased efficiency, one person on an American farm today supports himself, three people in a town and one person overseas, he said. Similar efficiency increases have occurred in industry, he said.

Instead of a lack of food, there appears now to be an overabundance through greater production efficiency, he said, and until the nation is able to sell this surplus there will continue to be unemployment and depression problems.

The speaker devoted considerable attention to the rise of the idea of gold as the basis for currency and to the adoption of the idea of the favorable balance of trade, in which nations took in gold the difference between their exports and imports.

"Tariffs became a hot issue but our people approved of them," the speaker said, in pointing out the development of the idea of keeping other people's goods out while continuing to export. The general adoption of tariffs affected trade by all countries and now, he said, is becoming an interstate matter through the adoption of restrictions by the various states. Mail order houses are "foreign" to some states which have adopted restrictions, he recalled.



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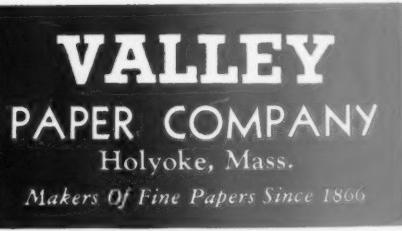
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**A Million Dollars' Worth  
of Printing**

(Continued from page 50)

and ledger. This table of factors is shown in Figure 2. In applying this table to a delivery which does not measure up to specification requirements, a deduction from the contract price of the paper is made, equal to the amount of deviation from the requirement, divided by the stated requirement, multiplied by the applicable factor.

For example, a delivery of 24 lb. ledger paper, 50% rag, shows folding endurance of only 250 double folds against a specification requirement of 300, and shows 6% ash instead of the allowable maximum of 5%. Referring to Figure 2, the factor for folding endurance is 30%, and 5% for ash. Consequently there is a deduction for folding endurance of

300-250

$\frac{250}{300} \times 30\% = 5\%$  of the contract price.

There is a deduction for ash of  $\frac{6-5}{5} \times 5\% = 1\%$  of the con-

tract price.

In this case, therefore, a total deduction of 6% of the contract price for paper would be made.

Deliveries are rejected when the total deductions for any grade of paper exceed 15% of the contract price; or when the deduction for any individual item exceeds 50% of the applicable factor; or when the weight, stock or other requirements not covered by the items in this table do not comply with specification requirements.

A further step in handling the paper item on printing contracts is adapted from the system used by the U. S. Department of Agriculture. Under this plan, the Department of Purchase is to contract with paper manufacturers to supply suitable stock in the various grades called for in the City's printing schedules, negotiated on the basis of total requirements of each grade. Printers who are awarded contracts will then order the paper against these paper contracts, shipments being billed to the printer. The cost of this factor is thus definitely known in advance, a suitable additional charge being allowed for handling and spoilage. An important effect of this arrangement is to take the gamble out of paper buying, most printers being unable or un-

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Refiners and Makers of  
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willing to carry large inventories of paper or to make such extensive commitments. In addition, it effectually prevents the use of paper as an element of evasion or skullduggery in the printing contract.

#### Bid on Printing Operations

In taking bids on the printing, all forms have been consolidated to come within nine general groups, as follows: A, forms up to size 8½ x 8 inches; B, tax bills; C, forms up to size 8½ x 11 inches; D, forms up to size 8½ x 14 or 9½ x 12 inches; E, forms up to 17 x 28 inches; F, letterheads and note heads; G, cards; H, commercial envelopes; I, window envelopes.

Quotations are then taken, for each of these groups, based on the actual operations, such as composition, plain, tabular, and with rules; proofs; presswork; author's alterations; extra color; photo engravings and electrotypes; padding; numbering; perforating; gumming; wire stitching; binding; etc. It will be recognized that every conceivable form will readily fall into a definite place on this schedule, according to grade of paper, size, press run, type of copy and make-up. But in place of estimating on 1595 items, the entire range is embraced in 162 items, concisely detailed in a document of 54 printed pages. Printers find it practicable instead of burdensome to bid on the types of work for which they are equipped, and the quotations can be quickly and intelligently compared and checked against the facilities of the prospective supplier. The work is now awarded to a representative number of printing shops, instead of to a favored few, and there is complete flexibility for the handling of an emergency requirement such as mentioned above, within the annual contract.

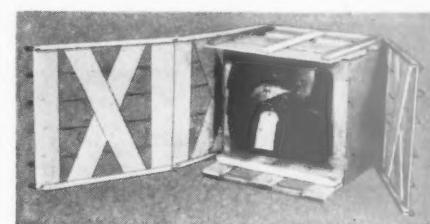
The contract also gives the City the option of purchasing standing type at the market price for metal—a potent protection against the monopolistic position of any printer holding standing type on the many repetitive jobs such as forms or lists, where composition costs are a major consideration. By exercising this option, the cost of which could be amortized over a reasonable period representing the life of the copy for the form or list and the life of the type itself, the City would contract for author's alterations instead of new composition, and bidders would be kept on a truly competitive basis without sacrificing any proper remuneration for the work

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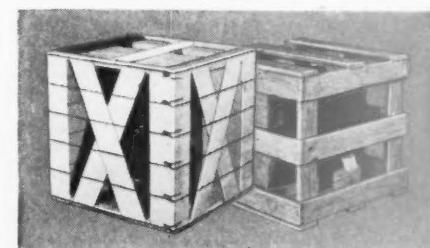
Saves 13 lb. tare weight  
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Like hundreds of other businessmen interested in obtaining maximum return for their products, a well-known midwestern Unit heater manufacturer had the General Box Laboratory check over his packing and shipping practice. A new container was designed



The construction of the General wirebound crate saves assembly and packing time. Saves storage space.

which made packing and handling easier, faster. Important savings in freight costs were made possible by the reduction in tare weight and the container itself cost less. Full protection of the contents was assured by the General wirebound feature.



Right: Old crate, although heavier, affords less protection.  
Left: General wirebound crate combines light weight with ample strength.

**Manufacturers of All Types of Products** have received the money- and time-saving benefits afforded by the General Box Laboratory Service. You, too, may find a saving amounting to thousands of dollars simply by taking advantage of General Box designing facilities and manufacturing experience. Why not find out? There is no obligation.

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actually performed under their contract.

Under such a contract arrangement, billings are itemized and are capable of accurate audit. An auditor of printing has been appointed to check costs (a precaution not observed on the T.E.R.A. contracts previously referred to). A maximum price schedule has also been established for briefs, legal documents, and the like which do not come within the form printing schedule proper, and this schedule is also applicable to orders issued by independent purchasing agencies, for the Department of Purchases handles directly only a little more than half of the City's total printing bill of some two million dollars annually. It has no jurisdiction over the printing of the Department of Education, Transportation, Board of Elections, and some other departments.

The latest significant recognition of the accomplishments of this broad program, and of the potentialities for even greater efficiency and savings in this field, is an appropriation of \$12,500 made last November, for expert counsel and study of printing orders and contracts and the reorganization of methods of inspection and payment, to be expended jointly by the office of the Comptroller and the Department of Purchase.

### Spectacular Savings

Some of the savings on specific items have been spectacular. Books of food tickets, formerly bought by the F.S.C.C. at a cost of \$60,000 for lots of 250 thousands, were procured from the same company at \$17,000 when the state printing contract was used. As a result of changes recommended by the standardization study group, the price was further reduced to \$5,500, and under the new contract procedure the cost is down to \$3,200, a total saving of more than 94%. A considerable part of that saving has been made by eliminating charges which were technically legitimate but unnecessary—such as extra color printing of a type block on the cover, hand numbering instead of machine numbering, gummed strips, and a size just over standard. The usefulness of the form has not been affected in the least by these changes, and similar changes are being made in many other forms.

In another instance, the cost of four envelope items was brought down from \$8,600 to \$6,650; from \$2,140 to \$1,380; from \$1,820 to

\$1,550; and from \$1,520 to \$1,230. And on top of these savings of \$3,270 on the cost of envelopes and printing, there was a \$750 saving in postage due to careful calculation of mailing weights and the use of lighter but thoroughly adequate stock.

But while many such individual instances could be cited as evidence of present efficiency, it is probable that the greatest value and the bulk of the savings are to be found in the smaller items—\$10 here and \$20 there—which accumulate to impressive totals in the course of the year. It is estimated that "routine" savings of this nature now amount to \$50 per day, and most of these are of a recurring nature so that this figure will be multiplied many times. Moreover, the complaint of below-cost quotations, which was rife under the higher costs of five years ago, is no longer heard. Responsible printers are bidding on the business and are glad to get it. The whole development is a powerful argument for centralized buying, and an example of constructive purchasing that benefits the seller, the buyer, and the user.

### New Horizons for Enterprise

(Continued from page 47)

The search by industry for new products and new processes is greatly stimulated in times of a depression and in these last depression years there has been emerging from industrial laboratories and scientific workshops everywhere a flow of new products and new processes whereby, by bringing products, new and old, within the reach of more people, more job opportunities are created along with improved standards of living.

News of new activities and new possibilities have come in from virtually every field of endeavor. In air transport, for instance, it is apparent that we have just entered upon an era of vast opportunity and growth. Trans-oceanic mail and passenger flying has already achieved the status of routine schedules, carrying new social and commercial benefits to peoples everywhere. Research progresses in further instrumentation for air navigation, in the study of stratosphere flying, in additional devices for two-way communication and still greater safety.

From research have come new Diesel-powered locomotives to speed up service and reduce costs. Improved types of roadbed, the increased use of air conditioning in passenger trains, high-speed, lightweight equipment, traffic control systems permitting faster freight schedules, studies in fuel economy and many other developments indicate a bright future for the railroad—the backbone of our transportation system.



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The science of synthetics, through which new substances are brought into being from coal, milk, cotton, wood, from water and the elements of the air, seems to broaden with each forward step. Plastics, a growing family of chemically-created materials, are finding hundreds of new uses in industry and the home, promoting job opportunities all along the line from the raw material to the sale of the finished product. Synthetic fibers make possible textile filaments and fabrics more durable and with wider utility than any now in general use.

Similar industrial developments are taking place in communication, just now pioneering in television and facsimile reproduction by radio; in metallurgy in the production of new alloys; in the field of health with preventive medicine and food preservation; in the production of new types of power and light; in farming, through studies in plant culture and experiments with low-cost implements. Our building industry looks forward to the introduction of still more effective construction materials and revolution in processes of house fabrication. In a multitude of activities intimately affecting our lives and our living, the application of science and scientific techniques is creating new areas for constructive work.

Too much have we had forced upon us the descending spiral of events that led to depression lows and too little the fact that there are equally effective and powerful forces which, set in motion and given freedom to act, will build an ascending spiral leading to new levels of prosperity and progress. There has not yet been found any substitute for continuous and laborious industrial research as an instrumentality for the production of better values for customers and the promotion of new job opportunities.

With this constant striving for more and better products at lower cost, the horizons of enterprise were never broader than they are today. New knowledge and new skills have opened up fields of possibilities little dreamed of even a decade ago.

## The A B C of Buying Buildings

(Continued from page 63)

of buildings. This question is a very leading one, and there is no universal answer to it. Climatic conditions, labor and material prices and freight rates, plus individual site conditions in different sections of the country, will vary considerably. However, there are a few general rules which can be safely applied.

Wood framing, for example, is universally cheaper than steel framing, except for very long clear roof spans. Beam and column steel framing, with short spans, up to 35 feet, is generally more economical than the lighter truss fabrication. For spans over 35 feet, a truss usually becomes more economical. The wider the roof span, to provide un-

obstructed floor space, the more expensive will be the cost of the framing.

Flat, or nearly level roofs, unbroken by monitors or skylights, are the most economical type of roof construction.

Steel sash is still from one-half to one-third as costly as glass block. Where air conditioning is involved, however, the higher cost of glass block or double glazing would be absorbed in a relatively short period of time by the operating savings from the superior insulating quality of these materials.

In conclusion, the fundamentals of good buying for factory buildings can be summarized as follows:

Approach the purchase of a building with a frank understanding of the hazards involved. As the nature of the



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have the patented blue Aligning Card that holds hooks in position, prevents them from loosening, prevents hook loss from handling, prevents waste of short ends. Every WIREGRIP Hook to the last one can be used.

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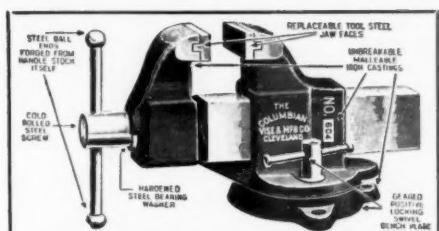


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work becomes more complicated, the higher price you will usually pay for lump sum cost protection. Employ experienced designing talent, properly qualified for the work you intend to do. If your work involves new plant space, examine your existing facilities and layout to determine if expansion can produce not only extra floor space, but an operating saving as well. Make this analysis with your own organization, or preferably with the help of the experienced viewpoint of an industrial specialist. Allow adequate time, especially for the layout study, and whenever possible for the design work, and for the preparation of bids. Select only bidders experienced in the kind of work you are considering, and then limit them in number. Examine proposals carefully and be sure that all bidders are quoting on the same basis. Hear their suggestions—they may save you money.

Don't try to save money on factory floors or roofs—it is expensive economy.

#### 1 1 1 MUNICIPAL PURCHASING

**THE 1940 MUNICIPAL YEAR BOOK**, published by the International City Managers Association, reports that 123 cities, or more than a third of the nation's 310 cities of over 30,000 population, have centralized the purchase of municipal supplies in a single purchasing department or agency of the city government. Eight of the cities adopted centralized purchasing in 1939. Seventy-five of the 123 have full-time directors of purchasing, while the other forty-eight combine the direction of this department with other administrative duties. Personnel in these departments ranges from one to fifty-five, excluding New York and San Francisco, where the number of employees is substantially greater. In the group of 51 reporting cities of over 100,000 population, purchasing department employees are under civil service in 39 cases, or 75%; in the 72 cities of less than 100,000 population, only 29% are under civil service.

The policy of making purchases from local merchants and dealers whenever possible is notable in municipal buying. Augusta, Ga., reports 98% of city purchases made from local businessmen through its centralized bureau. 95% of city business is placed locally in 15 cities; 90% in 12 cities; 85% in 11 cities; 80% in 13 cities; 75% in 11 cities; and 70% in 6 cities.

#### 1 1 1 ENGINEER TO PURCHASING

**E. R. WHEELER**, for the past twenty-three years associated with the engineering department of the Western Union Telegraph Company, has been appointed Assistant General Purchasing Agent of the company at New York.

#### 1 1 1 PANABAKER APPOINTED

**P. N. PANABAKER** has been appointed City Purchasing Agent at Coeur d'Alene, Idaho, effective May 1st, in addition to his duties as clerk to the city council. As buyer, he succeeds Councilman John Maher.



### BEFORE YOU PURCHASE DO YOU CONSIDER RECEIVING ROOM COSTS?

When competitive bids are before you, do receiving room costs enter the picture? Often it is surprising how substantially they can affect the actual cost. Shipments from some manufacturers can be handled easily—unpacking is accomplished quickly—products may be conveniently stored or distributed. But from others, opening and unpacking are difficult, causing delay, costly handling and re-distribution—receiving room expense mounts, and what seemed to be an extremely low bid may turn out to be the highest one.

#### ACME STEELSTRAPPED SHIPMENTS ASSURE LOW-COST RECEIVING

When shipments have been Acme Steelstrapped for reinforcement and protection, you may be sure that receiving costs will be at a minimum. One snip of each strap—and contents are removed easily and quickly. Bulky, odd-shaped products become easily, quickly, economically handled bundles. It's better buying to insist on Acme Steelstrapped shipments. The supplier will benefit, too—his shipping and handling costs will be substantially reduced.

#### BE SURE TO GET THE FACTS ABOUT ACME STRAP PURCHASE PLAN

Your own purchases of Steelstrap for your company's shipments can be made most economically on the Acme Strap Buying Plan. Mail the coupon for complete details. No obligation.

#### ACME STEEL COMPANY

2842 ARCHER AVENUE, CHICAGO, ILL.  
Branches and Sales Offices in Principal Cities

ACME STEEL COMPANY  
2842 Archer Ave., Chicago, Ill.

- Furnish complete information about the Acme Strap Buying Plan.
- Mail a copy of "Stopping Profit Leaks," describing the advantages of Acme Steelstrap.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

# New PRODUCTS & IDEAS

## PORTABLE PRINTER



**This portable** reproduction unit was designed to use positive printing, dry developing Ozalid sensitized papers and cloths. It will reproduce engineering drawings, letters, reports, maps; in fact, any pencil or ink lines, typewritten or printed matter appearing on one side of a reasonably translucent sheet.

The light source consists of six specially developed lamps. The case is finished in attractive gunmetal, and a highly polished aluminum reflector assures uniform light distribution over the printing surface. A new feature is a dry developing chamber, which is conveniently located behind the metal reflector; thus, utilizing the heat generated by the lights to vaporize the developing agent. An additional feature is a time switch, which allows the operator to automatically regulate the length of exposure; thus eliminating guesswork.

It is light and portable and can be used either in the office or in the field on the job. Since no moist surface developing solutions are used, no washing, fixing or drying is required. Product of the Ozalid Corporation, Johnson City, N. Y.

## BOOK AND ALL-RAG BOOK PAPER

**One line** with two "companion" grades is announced by Strathmore Paper Company, their Book and All-Rag Book paper.

The Book is now an inexpensive staple paper for general printing. Rolls in varying widths are being carried at the mill to supply special requirements.

Its smooth finish, soft texture, excellent ink receptivity, and opacity, uniformity of both sides, and substantial bulk, will make it a fine and economical paper for printers. White and Ivory, Wove and Laid, in substance 70 and 80, are stock items.

The All-Rag Book is one hundred per cent rag sheet and will fill the requirements of many printers for permanent editions, deluxe folders and booklets, and other fine printing jobs. Its fine white color and distinctive over-all watermark gives the paper a rich beauty, while its excellent printing surface, exceptional bulk and good opacity are unusual in such a moderately priced line.



Made with a deckle, the All-Rag Book line is available in both Wove and Laid items of 60 and 80 pound substance. A large inventory is kept at the mill in rolls with varying widths for special printing requirements.

## CENTRIFUGE FILTER UNIT

**The condition** of the lubricating oil in an entire engine system is the real problem in oil purification — not the condition or appearance of a small oil sample or batch from a purifier. These combination purifiers manufactured by Goulds Pumps, Inc., Seneca Falls, N. Y., are an honest answer to the question of keeping the oiling systems clean by centrifuging at relatively high capacities to keep the oil mechanically clean and by filtering with Fullers earth to remove gums and other soluble contaminants, and to restore the color.

A centrifuge, operated properly, will keep the oil mechanically clean and in splendid lubricating condition. It will remove insoluble impurities including water, throwing these impurities out of the way of the oil flow. A centrifuge has sufficient capacity to turn over a complete oiling system in a few hours, it operates efficiently at relatively low temperatures, is inexpensive to operate, requires no refills or cartridges and is easy to maintain.

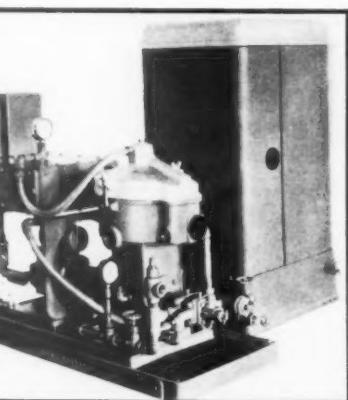
## WIRE ROPE CLIP

**Test made on this wire rope clip indicate** a 20%-30% increase in holding power and a marked lessening of rope distortion. Results are attributed to a few simple features: bolts and identical bearing surfaces on opposite sides equalize the pressure on the rope.

The clip contrasts with the "U-Bolt" clip which has both nuts and a single flat bearing-surface saddle on one side. Care must be exercised in placing the saddle of the "U-Bolt" against the working part of the rope.

Ease of application, fewer accidents and savings in rope are among the advantages claimed for this clip.

Product of Thomas Laughlin Company.



# Purchasing Agent Makes BIG SAVING



**ECONOMICALLY.** ACCURATELY handles many jobs that used to be done by hand.  $\frac{3}{8}$  h.p., Universal motor drives spindle direct at 18,000 r.p.m.—plenty of speed and power for fast, smooth work.

A Complete Line  
For Industry

## On High Speed Stanley Contour Grinder At \$69.50!

Here's another case to prove the savings that originate in the Purchasing Department! Walking through his plant, a P. A. noticed the number of operations that were being done by hand—slow and time-consuming. Making templets, grinding dies, "finding blanks," correcting hardening distortion—all of these operations required tedious hand filing and hour after hour of the time of skilled, high-paid men.

He suggested the purchase of the new, 18,000 r.p.m. Stanley Contour Grinder. It took over all these jobs, at a big saving in time and labor, and in addition, was pressed into service for many light operations in the plant's production. The low \$69.50 cost was quickly repaid.

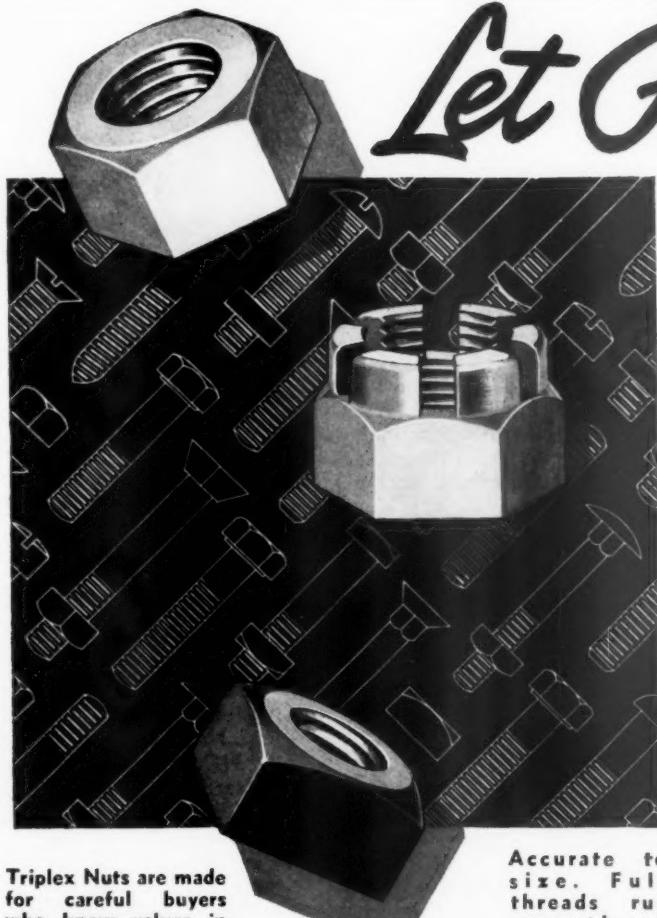
There is probably an opportunity in your plant for this handy, well-built tool to go to work at a profit for you! Ask your Stanley distributor for a demonstration, or write for literature. Stanley Electric Tool Div., The Stanley Works, 156 Elm St., New Britain, Conn.



**WHAT'S YOUR JOB?** This new tool will handle a wide range of work. Big 12" x 12" table and tilting spindle make it easy to use on any job, without time-consuming set-ups.

**STANLEY** TRADE MARK **ELECTRIC TOOLS**

"Cost Less  
Per Year"



Triplex Nuts are made for careful buyers who know values in screw products.

Accurate to size. Full threads run smooth and tight.

When writing advertisers please mention Purchasing

# Let Profits Speak

## for the Economy of TRIPLEX Products in use

If you're an old hand at figuring costs you probably make allowances for defective parts and supplies. Get set to turn "safety factors" on cap screws, bolts and nuts into extra profits by using TRIPLEX. Enjoy economy in use from their time-saving fit—their tough strength that prevents breakage trouble and expense. TRIPLEX Quality is maintained through careful specification of steel and manufacture on finest modern machines. You save valuable time when you order regularly from TRIPLEX. Write or wire now for catalog and prices.

THE TRIPLEX SCREW CO., 5331 Grant Ave., Cleveland, O.

**TRIPLEX**

CAP AND SET SCREWS, BOLTS, NUTS AND RIVETS

★ Millions Sold . . . Used in Every Industry ★



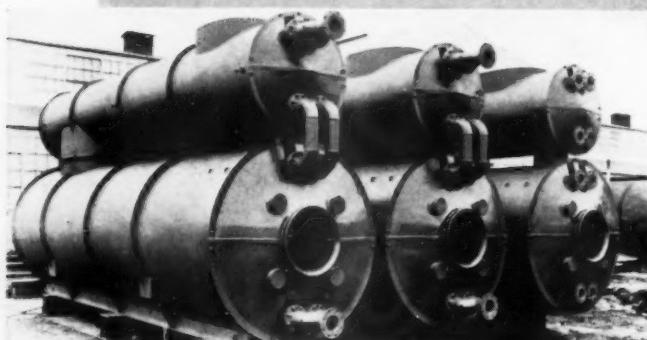
## SAFETEX TAPE FOR ECONOMY

The "herringbone" pattern on SAFETEX Gummed Tape is embossed into the gum. This insures perfect moisture distribution from edge to edge across the width of the tape, eliminating bubbles and blisters while applying. These grooves make SAFETEX cloth-like and pliable and increase sticking speed and holding power. Result—permanent, efficient and economical sealing.

*Distributed by Paper Merchants Everywhere*

**CENTRAL PAPER CO. MENASHA, WIS.**

## DEPENDABLE



Welded Heat Exchangers

On the record, the dependability of Graver-Built Equipment has met Industry's varied needs for quality Steel Plate Construction through more than three-quarters of a century.

### GRAVER builds

Fabricated Steel and Non-Corrosive Composite Plate . . . Water Softeners . . . Filtration Systems . . . Clarifiers . . . Steel Storage Tanks . . . Vapor Conservation Systems

For quotations on equipment to suit your needs, write Graver Tank & Mfg. Co., Inc., Dept. 21, East Chicago, Ind.

**GRAVER TANK & MFG. CO., INC.**

NEW YORK  
CATASAUQUA, PA.

OVER THREE QUARTERS OF A CENTURY OF DEPENDABLE SERVICE  
EAST CHICAGO, IND.

CABLE ADDRESS—GRATANK

CHICAGO  
TULSA

*When writing advertisers please mention Purchasing*

## FILM STENCIL

■ One of the most important improvements in stencil duplicating is the new Tempo Film Stencil because it solves practically every major stencil problem prevalent today.

As the photograph indicates, there is a transparent patented film sheet adhered to the stencil and it is through this film that all typing is prepared. In other words, you type right on the film which means no more type-filling, no more type-cleaning, no more loop-letter cut-outs and no more roller swelling—four problems which have been a bane to stenciling.

In each of the foregoing claims there is a considerable amount of savings in time, labor, supplies, and costs. The film sets up the most uniform cutting conditions so that the most uniform, clean-cut copies must result.

Product of the Milo Harding Company, Pittsburgh, Pa.



## NUMBERING PLATES

■ A line of cast bronze numbering plates for marking purposes such as the numbering of plants, gates, tanks, stations, etc., has been developed by The Moseback Electric & Supply Co., Pittsburgh, Pa. Cast in one piece from rust-proof, acid-resistant bronze alloy, the plates are available in any size up to 3 ft. by 2 ft. Minimum thickness is  $\frac{1}{8}$  inch.

The markers can be supplied in any style or any combination of letters and figures. Because of the fact that these letters and figures are part of the plate itself, and because they are raised from the surface of the plate, they never lose their high visibility. Tampering cannot mar the plate or change the original letters.

Fitted with a shank and clevice arrangement for hanging, the plates can, if desired, be drilled for bolting onto flat surfaces. They are ideal for permanent marking in areas which are exposed to heat, moisture or acid.



## RUST-PROOF ALLOY



■ Characteristics of alloy No. 301, offered by The Colonial Alloys Company, Philadelphia, Pa., as recorded by Tinus Olsen Testing Machine, are as follows: Ultimate tensile: 72,110 lbs. per square inch; elongation % in 2": 32; yield point: 57,530 lbs. per square inch; reduction of area (% of original section): 16.5; Brinell: 109.

sile: 72,110 lbs. per square inch; elongation % in 2": 32; yield point: 57,530 lbs. per square inch; reduction of area (% of original section): 16.5; Brinell: 109.



## Micro-Weave All American TRACING CLOTH

Tracing cloth cannot be tested with conversation. We cannot sell it by just talking about it — competent technical men are not going to buy it because we say it is good.

Arguments based on opinions have little weight — where actual tests furnish proof.

**Micro-Weave All American Tracing Cloth is proving its way — against every argument and every prejudice.**

Write for sample testing sheets of Micro-Weave Tracing Cloth — try it yourself.

**THE HOLLISTON MILLS, Inc., Norwood, Mass.**  
Companion Products: Royal Blue Print Cloth and Photo Cloth.  
BOSTON • NEW YORK • PHILADELPHIA • CHICAGO  
ST. LOUIS • RICHMOND



The dispensing roll container is a protection, a convenience and an identification. It keeps the cloth clean — handy brackets attach to desk or table.



Thicknesses from  $\frac{1}{4}$ " to  $\frac{1}{2}$ ".  
Sheets 40" x 40" and larger.

DAY in and day out... for months at a time... gaskets cut from GARLOCK 7021 Compressed Asbestos Sheet stand up against light oils at unusually high temperatures such as exist in the big oil refineries. And they are equally effective against super-heated steam at extreme pressures.

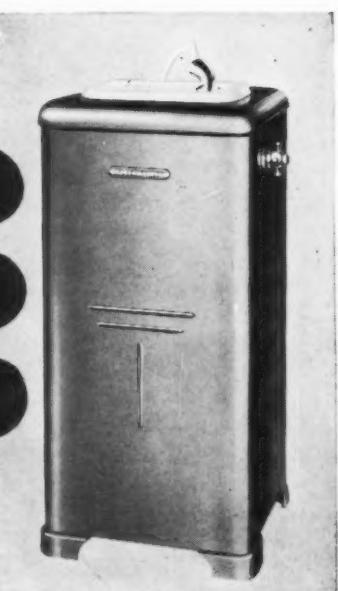
Specially developed for severe service, GARLOCK 7021 High Pressure Sheet gives superior performance against all light oil and steam conditions. Try 7021 in your plant!

**THE GARLOCK PACKING CO.  
PALMYRA, N. Y.**

In Canada: The Garlock Packing Company  
of Canada Limited, Montreal, Que.



**GARLOCK 7021**  
Compressed Asbestos Sheet Packing



FOR years Halsey Taylor combination coolers and drinking fountains have been the standard in the industrial world. They are accepted as the leading coolers of their kind. Only a Halsey Taylor has the health-safe two-stream projector and practical automatic stream control. Both ice and electric types. Write for literature at once!

**THE HALSEY W. TAYLOR CO., Warren, Ohio**

Manufacturers of Famous Halsey Taylor Drinking Fountains



## SEATS ALL WORKERS AT HEIGHT THAT'S RIGHT!

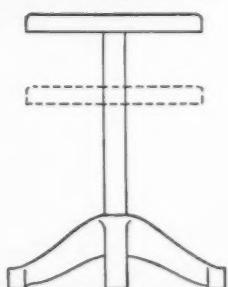
The illustration at the right shows the adjustment range of the Kewaunee Ever-Hold Automatic Adjustable Stool No. E-1824. The seat can be adjusted to any fraction of an inch within this adjustment range without the use of tools, gadgets, set screws or other types of bolts or nuts. Simply lift the seat to the height that's right and it locks in place.

**EVER-HOLD**  
TRADE MARK

AUTOMATIC ADJUSTABLE STOOLS and CHAIRS



Stool No. E-1824



E-1824  
Adjustable Range  
18 to 24 inches

Cut out every unnecessary strain. All workers are seated at the best height for their comfort. Tall workers, medium sized and short workers, all can be comfortable, which is sure to mean increased efficiency.

Write for free Ever-Hold Catalog and prices. Have complete information on the entire line of stools and chairs.

**Kewaunee Mfg. Co.**  
LABORATORY FURNITURE EXPERTS

C. G. Campbell, Pres. and Gen. Mgr.  
5006 S. CENTER ST., ADRIAN, MICH.

Leaders in the Manufacture of Laboratory and Library Furniture  
Since 1905

When writing advertisers please mention Purchasing

This alloy has good forming and drawing qualities and is absolutely rust-proof.

It lends itself to gas welding, spot welding, seam welding, arc welding, brazing, soldering, Cola-welding (fusion welding chemically) and reaction soldering.

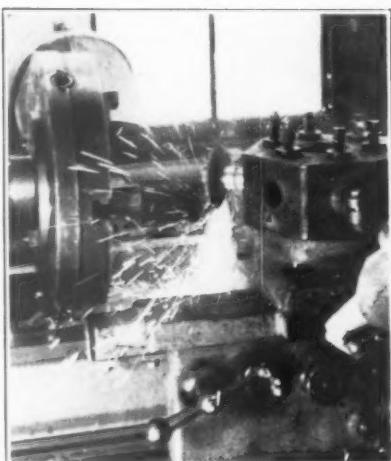
The thermal and electrical conductivity factors are good, as well as the corrosion resistance factors.

The metal polishes to a beautiful, lustrous, silvery, chrome-like appearance. Also it is non-magnetic and non-sparking.

It is approximately 66% lighter than steel or iron and 70% lighter than brass, copper, nickel, bronze or their alloys. Its high weight-strength ratio makes this metal rather unusual.

## WHEELS FOR PRECISION GRINDING

■ Two wheels for the particularly difficult precision grinding involved in high speed steels and similar metals are announced by the Atlantic Abrasive Corp., South Braintree, Mass. One type is made for fast, clean cutting on tools or dies. A patented synthetic bond is used to eliminate heat and prevent clogging or glazing, and a grit that stands up under the hardest use. The wheel comes in all grain sizes from coarse to fine, with the latter particularly recommended for grinding cast iron and alloy pistons, etc., and for precision grinding of all steels.



Another type which also comes in all grain sizes, is a medium tempered wheel for grinding all fine tools made of high speed steel, stellite, carbonyl and other alloyed steels. It permits maximum working speed and pressure without danger of burning—will operate coolly and efficiently on jobs that ruin ordinary wheels.

## NONSLIP PULLEY COVERING



■ A special material which was invented some 40 years ago and applied to the face of pulleys to prevent belt slippage is now being manufactured on a commercial scale by the Nonslip Pulley Covering Co., Buffalo, N. Y.

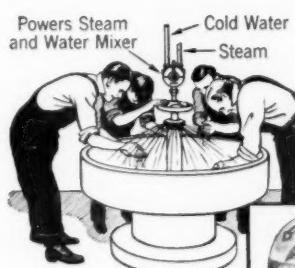
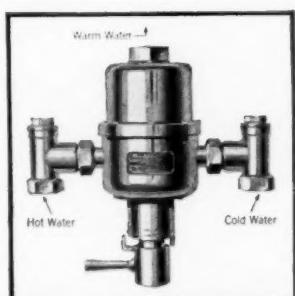
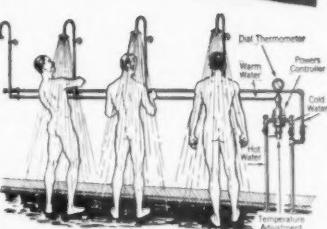
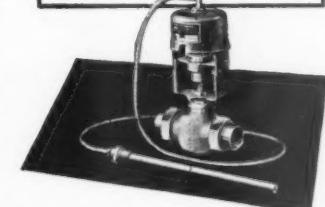
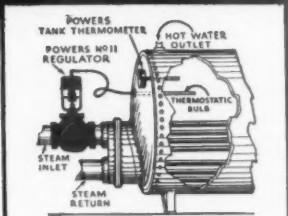
It comes in sheets containing 9 square feet. It is then torn in strips of the proper width and length to go twice around the pulley, including the lapping. To apply the first thing to be done is to see that the pulley is absolutely clean, then tear off strips of the proper width, soak for a few moments in hot water to soften the substance, and then apply tightly to the pulley as illustrated in the accompanying picture.

A single application usually lasts a couple of years. It eliminates practically all slippage and enables users of belt and pulley drives to get higher production from their machines. A free sample for testing will be sent to any concern requesting same.

## For Better Washroom Facilities use POWERS TEMPERATURE CONTROL

### For Hot Water Heaters

By eliminating OVER-heated water which wastes heat a Powers Regulator will pay back its cost several times a year. Overheated water also shortens life of valves and plumbing fixtures and increases deposit of lime in pipes.



### Wash-Up Sinks and Individual Showers

For a low cost warm water supply for individual showers or wash-up sinks, use a Powers Steam and Water Mixer. It employs the most economical method of heating water—by mixing it directly with steam.

It heats only the amount of water required at the time you use it. Recommended where impractical to install hot water storage heater.

**Write for Condensed Catalog No. 2508**

THE POWERS REGULATOR COMPANY, 2792 Greenview Ave., Chicago—231 East 46th Street, New York—Offices in 47 cities—See your phone book.

**POWERS** WATER TEMPERATURE CONTROL

IT'S HERE!

# CONFORMABLE Kimpak

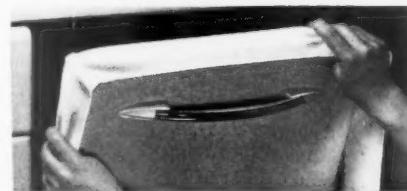
REG. U.S. PAT. OFF. & FOREIGN COUNTRIES

### CREPE WADDING

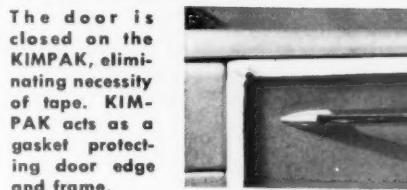


Strip of 10-ply Conformable KIMPAC<sup>\*</sup> cut to 80% of length of edge to be protected.

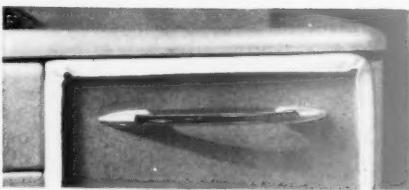
By gripping the KIMPAC with thumbs and forefingers at center of end, stretch strip about 25% —a trough shape results.



Note how trough shaped strip of KIMPAC now readily conforms, fitting neatly over door edge.



The door is closed on the KIMPAC, eliminating necessity of tape. KIMPAC acts as a gasket protecting door edge and frame.



### For Faster Packing—Safer Protection

• The above illustrations show how *Conformable KIMPAC* is applied to porcelain enameled range doors and drawers; similar packing problems are as easily solved with *Conformable KIMPAC*.

*Conformable KIMPAC* answers the need for a neat, quickly-and-easily-applied packing protection for products with irregular shapes. *Conformable KIMPAC* has all the safety features of famous KIMPAC Crepe Wadding, plus new and unique characteristics of immediate significance to manufacturers of irregular shaped products.

*Conformable KIMPAC* clings and gives protection to any irregular shaped surfaces, or products having compound curves, such as are found on clocks, vases, radio cabinets, and rounded or angular edges as found on range doors, lamp bases, automobile bumpers, smoking stands, etc.

Mail coupon for generous sample of *Conformable KIMPAC* to try out on your product.

\*Reg. U. S. Pat. Off. and Foreign Countries

KIMBERLY-CLARK CORPORATION, Neenah, Wisconsin  
Address nearest sales office: 8 S. Michigan Avenue, Chicago

122 E. 42nd St., New York City. 510 W. 6th St. Los Angeles

Please send us a sample of *Conformable Kimpak*.

CP-5

Company \_\_\_\_\_

Address \_\_\_\_\_

Attention of \_\_\_\_\_ Our Product is \_\_\_\_\_



The application of sealing tape on your boxes is the "finishing touch" in the production of your merchandise. Carelessness in this final step may nullify every previous production operation... inadequate sealing tape often causes the shipment to become damaged in transit. This does not happen with Red Streak Sealing Tape. The tough kraft and ample coating of quick setting glue is your assurance of positive and permanent adhesion. Although a real quality sealing tape, its low price will both surprise and please you.



**The BROWN-BRIDGE MILLS Inc.**  
TROY, OHIO

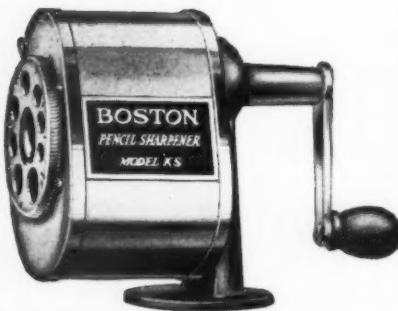
**RED STREAK  
SEALING TAPES**

**IT PAYS  
FOR ITSELF IN  
TIME AND PENCILS SAVED**

For real Office Economy you need the BOSTON KS Pencil Sharpener. Exclusive 15 cutting edge cutters prolong life of Sharpener, save 25% sharpening time. Automatic Stop ceases cutting when perfect point is made. Saves pencils, working time, money and annoyance!

Install BOSTON Sharpeners in your office and note increased efficiency in work achieved.

Ask for BOSTONS at your Stationers



**C. HOWARD HUNT PEN CO., Camden, N. J.**

Also Makers of Hunt Pens, Clips and Speed Ball Products

**BOSTON  
PENCIL SHARPENERS**

**REFLECTOR WITH STEEL HOOD**



Separable Reflector

This reflector, a development of the Goodrich Electric Company, Chicago, Ill., is now furnished with a new hood of rolled steel construction which combines lightness with greater strength. The thinner wall provides additional wiring space, while deep,

clean threads form a better ground connection.

The greatest possible simplicity is provided in this fixture through its "come-apart" design. It takes merely a quarter turn to release or attach the reflector. There are no screws, nothing to loosen or corrode. To install, it is necessary only to attach the hood and wire the socket. The reflector can be snapped in place later. The fixture is fitted with a resilient socket which is also removable and which can be replaced at small cost. This socket is spring mounted to absorb vibration and lengthen lamp life. It is finished in permanent porcelain enamel.

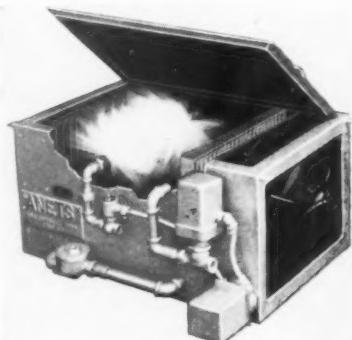
**AIR CONDITIONED UNIT**

Certain difficulties encountered through unfavorable reactions of paper stock to seasonal conditions and weather variations, are said to be overcome through the installation of this midget room air conditioner, manufactured by Anetsberger Brothers, Chicago, Illinois.

Installation and operation of the conditioner will enable printers or offset lithographers to maintain any desired degree of temperature or relative humidity within a given space, thereby preparing paper stock for presswork.

The unit is fully automatic in operation. Installation is flexible, and is accomplished either by placing the midget unit on wall brackets, or by overhead suspension. Outside dimensions measure 34 inches long by 25 inches wide by 15 inches high.

Unit is controlled at the wall by a combination thermometer and humidity gauge, which automatically maintains any given degree of temperature or humidity condition after manually set for both.



**WIDE-VISION GOGGLE OFFERS ADDED ADVANTAGES**



A full 150° effective range of vision is offered in this improved wide-vision goggle one of the latest developments of the Chicago Eye Shield Company, Chicago, Ill. Hardened safety lenses provide maximum protection

against severe impacts. Both lenses are easy to renew, by sliding them through the outer side of each eye-cup, and inserting the new replacement.

One of the important features found in this goggle consists of the new one-piece moulded cushion pad, which is composed of a very pliable material highly resistant to perspiration.

# Medart

STEEL LOCKERS and STEEL SHELVING

WRITE FOR CATALOGS

**NEW LOW PRICES**

FRED MEDART MANUFACTURING CO.

3539 DE KALB ST. • ST. LOUIS, MO.  
Sales Engineers in All Principal Cities • Dealers Everywhere

## WANTED: FUSSY FORGING BUYERS!

Apply at the World's Largest Job Forging Shop—Kropp Forge Company. We like fussy buyers because we are particular about our work. Every forging—hammer, drop or upset—regardless of quantity—must be just so.

Whether rough, heat-treated, semi-finished or completely machined, they have to be the way we'd want them if we were buying them for use on our equipment. That's why we maintain a top notch inspection department with Magnaflux Testing Equipment. That's why we maintain pantograph cutting torches and other special equipment—so we can do a better job, in the best way and least expensive for you. Too, that's why we maintain vast stocks of specification steels—to be sure you get your forgings as you want them and when you want them.

Send your blueprints for quotation. Let us have our representative call and explain our unparalleled facilities.

**KROPP FORGE COMPANY**  
3515 W. Roosevelt Road, Chicago, Illinois  
Representatives in Principal Cities



## THIS MAN KNOWS!

HE knows bolts, nuts, rivets and other threaded fastenings. He knows trends in design and production in industries where these fastenings are used. He knows sizes, types, materials, finishes, prices and delivery facilities.

He also knows he represents a quality product and a company noted for its progressiveness, stability and service. He knows that behind him stand 95 years of R B & W experience, modern methods and machinery, three well-located plants, large and assorted stocks, and expert engineering help on troublesome problems.

Right now, as always, he can give his customers what they want when they want it. Because he knows all this—and we know him—we want you to know him too.

*R B & W manufactures a wide variety of types of Bolts, Nuts, Rivets, Screws, Washers, Rods and Special Upset and Punched Products in various materials and finishes. Send for catalog and price list.*

**RUSSELL, BURDSALL & WARD**  
BOLT AND NUT COMPANY

PORT CHESTER, N. Y. ROCK FALLS, ILL. CORAOPOLIS, PA.

**When HEAT-FAG arrives.. Workers need SALT !**

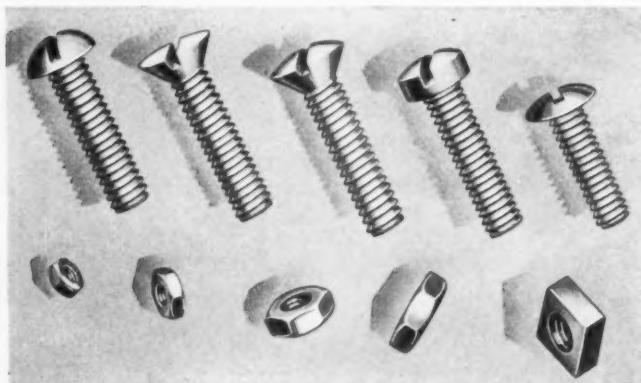
Heat Fag takes its toll—then workers slow up — tire quickly — grow irritable. Their bodies need SALT—to replace the salt sweated out by heat and heavy work. Provide Salt Tablets to workers who sweat. It results in higher efficiency — fewer days lost and more contented employees.

### MORTON'S SALT TABLETS

**MORTON'S MODERN SANITARY DISPENSER** delivers tablets one at a time. Morton's Salt Tablets are made of the most highly refined salt, pressed into convenient tablet form. Easy to take with a drink of water — dissolves in less than 50 seconds after swallowing.

Write for folder: "Heat Fag Among Workers."

**MORTON SALT COMPANY**  
CHICAGO, ILLINOIS



### Machine Screws and Nuts by Central-In Stock . . for Immediate Delivery . . !

★ Standard Machine Screws and Machine Screw Nuts, in steel and in brass, are carried in stock in enormous quantities at Central.

Famous for uniformity—ease of application and rigid holding power—they will speed your assemblies—improve your product—reduce your costs.

Same-day shipment to any industrial center, assured upon receipt of your order.

For a balanced stock control and ready reference to a wide variety of types and sizes—get Catalog "P". Write.



3515 SHIELDS AVE.  
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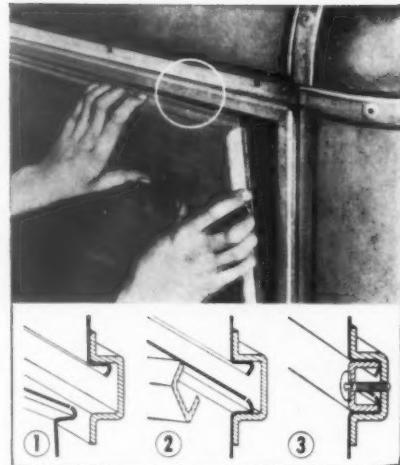
### MORE EFFICIENT USE OF STEEL

Sheet metal has been used for years on light structures, but simply as a covering material. Structurally, the sheets have been just so much dead weight. But in the new patented Lindsay Structure, every ounce of steel is called upon to contribute its strength, even the steel in the panel sheets.

Ordinarily, all initial wracking stresses to which a structure is subjected are borne by the framing, which must be cross-braced to withstand them. If the framing begins to "work", these stresses are concentrated at the weakest points of the sheets—the rivet, bolt, or screw holes, or the tightest points of the weld.

The sheets are pulled into tension between the framing members. These "Pre-Tensed" sheets instantly resist any movement of the framing, and the load is distributed over their entire area.

This method of construction was developed by Harvey B. Lindsay, president of the Dry-Zero Corporation, Chicago, Ill., provides these basic advantages: (1) It eliminates cross-braces, gussets, and struts by placing the sheets under tension between the framing members; (2) it creates a union between sheets and framing that approximates the full strength of the sheet; and (3) it provides ease of assembly and disassembly from the outside, equivalent to the simplest bolted construction.



### TYPEWRITER ADDRESSING MACHINE



Now for the first time, a specially designed addressing machine, announced by the Burroughs Adding Machine Company, Detroit, Mich., provides maximum efficiency on work where a limited number of repeat mailings to the same names does not warrant the use of address plates or stencils.

Since it handles pre-stuffed envelopes easily, this new front-insertion typewriter addressing machine effects further worthwhile savings by permitting the envelope-contents to be inserted in advance by the printer, or by clerks during spare time, so there will be no delay in mailing after addressing. This machine also brings new advantages to the addressing of empty envelopes, post cards, notices, labels, shipping tags, etc.

Forms are dropped in the machine's front-feed chute rather than inserted around the platen. Alignment is automatic. In the case of cards, empty envelopes, labels, etc., several copies can be placed in the chute at one time and each removed as it is completed. The chute may have one or more depth limits for various size forms, or for writing in different positions.

Equally valuable from the user's standpoint is the quick-action pressure bail which locks the forms in place. This eliminates "slipping" and "shadowing" and results in neat, clear type impressions.

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## Drop Forged WRENCHES

For industrial use and wherever quality counts ARMSTRONG WRENCHES are preferred for their extra strength, improved designs, finer steels, correct heat treatment, accurate openings and better balance.



Over 100 types, each in all sizes. Drop Forged Carbon and Chrome Vanadium Steel Open End and Box Socket Wrenches . . . Chrome Vanadium Detachable Head Socket and Hollow Screw Wrenches . . . Great Construction Ratchets . . . Special Wrenches of all types on short notice — standardize on "ARMSTRONG WRENCHES" they are the finest obtainable. Write for Catalog C-39.

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This One  
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Fig. 992  
Drawer  
is  
Extra

## "HALLOWELL" STEEL WORK-BENCHES

It's surprising how many steps and how much time and trouble this semi-portable "Hallowell" Steel bench will save. Why continue to tote work or tools back and forth between bench and job when you can make every part of the shop convenient to a work-bench with one of these? Just wheel it from job to job as you would a push cart. Handles, provided for pushing, swing safely out of the way when not in use. And when set down, you're sure of a firm, permanently smooth working surface. The long life of these benches, plus the real savings in time resulting from their convenience, makes them most economical investments.

Then there is the permanent type of "Hallowell" Work-Bench which is popular everywhere because of its lasting rigidity, a top that stays smooth as a surface plate (can't splinter, split or soak up oil as will a wood bench) and its really low price . . . advantages which mean improved workmanship plus economy.

Over 1300 models and combinations make certain your requirements can be met exactly. Catalog?



Fig. 732  
Pat'd and  
Pat's. Pending  
Drawer is extra.

## STANDARD PRESSED STEEL Co.

BRANCHES JENKINTOWN, PENNA.  
BOSTON DETROIT INDIANAPOLIS BOX 590

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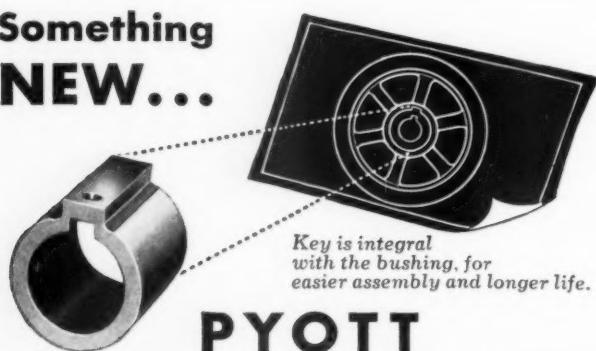
## RIDID No. OR.

This new RIDID No. OR reduces costs on threading small pipe. Quickly cuts perfect threads on  $\frac{1}{8}$ " to  $\frac{1}{4}$ " pipe. Die heads snap out easily for changing, snap into ratchet ring from either side—can't fall out, reverse for threading close-to-wall pipe—no special dies needed. Separate sets of semi-high-speed tool-steel chaser dies, accurately cut, long wearing. All-steel malleable-alloy spring ring. Patented carriers with all complete sets at no additional cost. Your men like these fast easy threaders that cut your threading costs. Buy from your Supply House.

THE RIDGE TOOL CO. • ELYRIA, OHIO

## RIDID PIPE TOOLS

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There is a difference in bushable sheaves. Pyott has developed a new bushing that eliminates key troubles and strengthens the sheave's danger point—the hub.

In Pyott bushings, the key is cast and machined integrally with the bushing, giving a sounder, firmer fit with the sheave. Easily interchangeable. Can't distort, burr, or wear out. Simple assembly, with only two setscrews to tighten. Perfectly cast and finished. And this superior product costs no more. Pyott Bushable Sheaves are made in a range of diameters from 3" to 18", widths from 1 to 6 grooves, for  $\frac{1}{2}$ " and  $\frac{21}{32}$ " cross section V-belts. Regular type sheaves up to 72" diameter.

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SHEAVES

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MACHINE CO.

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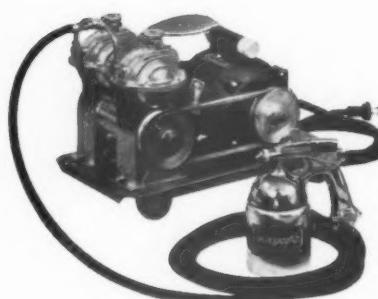
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V-DRIVES  
CASTINGS

## THERMOMETER OF PAPER

■ A chemically-treated paper which changes from white to deep blue in color when the temperature rises above a certain point, is an inexpensive, convenient replacement for more expensive and damageable pyrometers and steam pressure gauges. The paper has an opaque white coating of a material which melts sharply at a definite temperature, indicating positively by change in color that the surface with which the paper is in contact has reached that degree of heat. It can be made for controlling many temperature limits.

Designed originally for use in laundries, it is finding wide application wherever efficiency depends upon a limit of temperature. "Sure-Temp" is manufactured by the Nashua Gummed and Coated Paper Company of Nashua, New Hampshire.

## PAINT SPRAYING UNITS



are excellent for small production work in industrial plants.

The compressor, beautifully streamlined and attractively finished in silver and red, is mounted on a heavy sheet steel base with four  $2\frac{1}{2}$ " diameter rubber-tired casters and is V-belt driven by either a  $\frac{1}{2}$  h. p. electric motor or a  $\frac{5}{8}$  h. p. gasoline engine. The opposed connecting rods assure perfect balance and freedom from vibration during operation, and the compressed air is entirely without pulsation.

The diaphragm type compressor positively seals off the crankcase from the cylinder head and insures absolutely oil-free air. The diaphragms, which are of specially laminated construction and practically indestructible, last over 500 hours and are easily replaced.

The spray gun, which is of the pressure feed, internal mixing type, is furnished complete with round and fan spray nozzles, as well as with an angle nozzle for spraying ceilings and other points which could not otherwise be reached without tipping the gun.

## SAFETY COGGLES

■ The eyecups of this safety goggle manufactured by American Optical Company, Southbridge, Massachusetts, are molded from a special material that combines light weight for comfort with high tensile strength for long wear. This material is not affected by exposure to water, oil, grease, and perspiration. It can be sterilized by any method without harm. Anatomically designed, these eyecups have broad bearing surfaces, and are low set to provide wide angle vision.



The non-rubber headband consists of a spring and ball chain covered by a cloth sleeving. The chain prevents over extension of the spring, yet permits instant adjustment to any desired head size. When adjusted it maintains the same tension indefinitely but may be readjusted for different head sizes.

Lenses regularly supplied are the 6.00 curve clear super armorplate type. The caps which hold the lenses in place are precision threaded to insure easy removal for replacement of lenses. Metal screens provide adequate ventilation.

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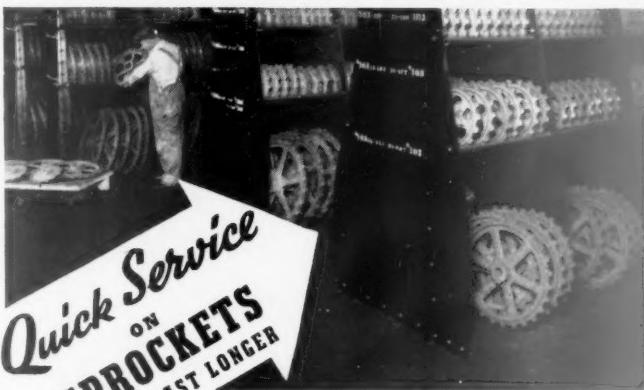
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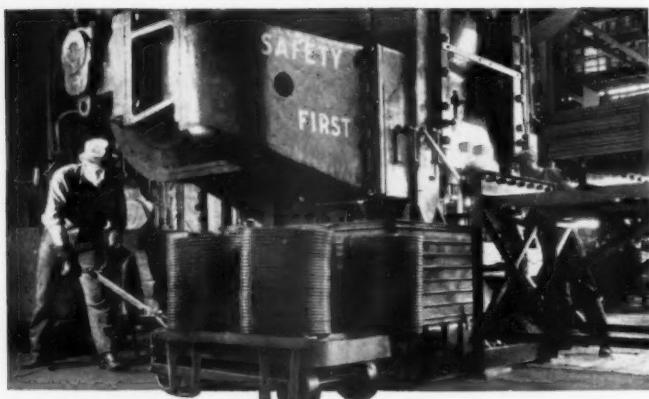
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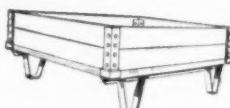
## JUST ANY LIFT TRUCK or One for Your Needs?



Barrett builds 16 models of lift trucks—a type and size for every need—in a wide range of capacities. Barretts save in every plant because they lift, haul and turn easier, notwithstanding rough service abuse and overloading.

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### CATALOG No. 3 OF KENNAMETAL TOOLS AND BLANKS

Completely illustrates and describes 20 standard style KENNAMETAL tools for machining steel and other metals. Includes the new Styles 19 and 20 tools for shapers and planers, as well as KENNAMETAL-tipped Milling Cutters. Complete specifications given for each style of tool.

#### Contains Complete Instructions on How to Order Tools and Blanks

In order to avoid mistakes and insure prompt delivery, the new catalog contains detailed instructions on the proper procedure for selecting and ordering KENNAMETAL tools and blanks. The accompanying price list has been simplified to the greatest possible degree. A copy of Catalog No. 3 will be sent free to all interested Purchasing Agents. Address:



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## CENTER CONTROL FORK TRUCK

This high lift telescopic tilting fork truck is fast gaining favor throughout many industries. The acceptance of this truck by so many manufacturers is undoubtedly due to the various operating features that have been built into it to give its user definite advantages.

The particular model shown in the accompanying illustration is shown lifting two pallet loads high up for storage off the floor. This high lift feature of the truck gives manufacturers an opportunity to take advantage of their "air rights." The easy maneuverability of this truck enables an operator to work in narrow aisles and to negotiate sharp turns to permit a greater use of all storage areas.

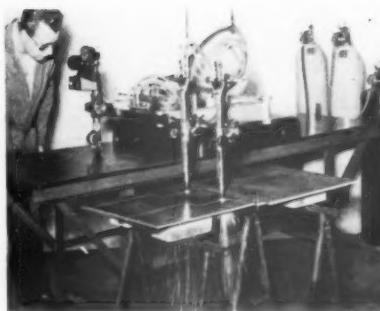
Notice also the operator's compartment. There is ample room for easy operation and the center control feature brings the operator in a position for clear visibility which facilitates picking up, transporting and depositing loads.

Still another feature of this truck is that the lifting mechanism telescopes so that the truck can operate in and out of box cars or under overhanging obstacles, while it gives the user high lifting advantages.

This truck has been so designed that all operating units, including the turning mechanism, the hoist and drive, are easily accessible. Manufactured by The Yale & Towne Mfg. Co., Philadelphia, Pa.



## GAS CUTTER



The extreme flexibility of use of the Airco No. 10 planograph announced by Air Reduction Sales Company, New York, is demonstrated by its ability to gas cut straight lines, rectangles, circles and irregular shapes from ferrous metal of any thickness within the present practical limits.

It consists of a tracing table upon which the carriage travels. The torches and tracing devices are supported on the carriage. Operating on either 110 or 220 volts a.c. or d.c., the unit requires a minimum of floor space. Even including the work table, the planograph requires a working area of only  $5\frac{1}{2} \times 10\frac{1}{2}$  ft.

Cutting range in single torch operation is 24 in. wide by 72 in. long. This length can be increased indefinitely in multiples of 72 in. by utilizing additional tracing tables. Maximum diameter of circle cuts is 24 in. When two torches, mounted on the regular operating bar, are employed for simultaneous cutting, the cutting area for each torch is 12 in. wide by 72 in. long. Two circles each up to 12 in. diameter can also be cut with the torches mounted in this manner.



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Call on Hubbard's long experience and skill in developing and manufacturing parts like these, to accomplish the results you are after in those various design and production problems.

Send in your drawings, or describe your problem. Your inquiry will bring real assistance and the advantages of long experience.

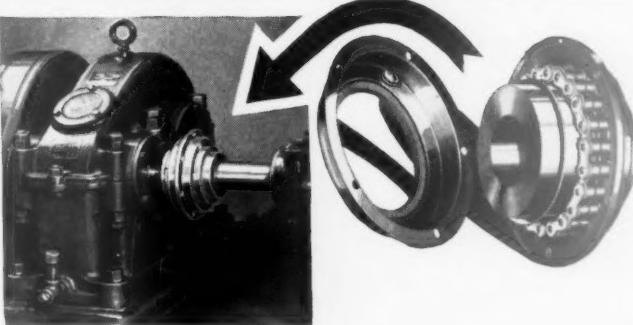


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- The Link-Belt "RCB" Flexible Coupling is rugged in construction, easy to handle, durable, reliable and efficient in service. Revolving casings are available for all sizes.

We also make flanged and compression types of couplings. Complete data and list prices are given in Book No. 1600 and General Catalog No. 800.

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7942-B

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### Greatest Forward Step in 30 Years

V/T Super Bond is one of the most important developments in mounted wheels. Nothing compares with it in long life, stamina and performance.



### 150% LONGER LIFE

Chicago Mounted Wheels of V/T Super Bond have 150% to 300% longer life, according to tests in many plants on snagging and exacting operations. Will not ridge on welds, sharp corners, sinking dies, barbering, etc. There's a shape and size to handle every grinding job faster, better, at lower cost. Let us send you a trial wheel. Tell us the kind of job, type of equipment used and size wheel you prefer.

**FREE MOUNTED WHEEL CHART**—Ideal for ready reference in the shop. A Wall Chart 22 x 15" showing actual size and shape of every standard Chicago Mounted Wheel.

### Handee Tool of 1001 Uses

A small "power house" that can be used wherever there is an electric outlet. Grinds, drills, polishes, cuts, routs, carves, sands, saws, sharpens, engraves, cleans, etc. Uses 300 accessories. Weighs 12 oz. 25,000 r.p.m. \$18.50 postpaid with 6 Accessories.

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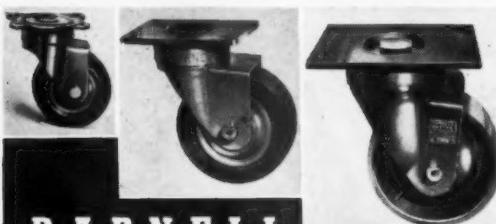
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■ **Carbon Dioxide** the gas that makes soft-drinks effervescent and, in dry-ice form, freezes perishable foods, now is recognized by engineers as one of the fastest and surest fire-extinguishing materials ever developed. In recent years, industrial research has multiplied the uses for this non-toxic gas, which is obtained in abundant quantities from coke.

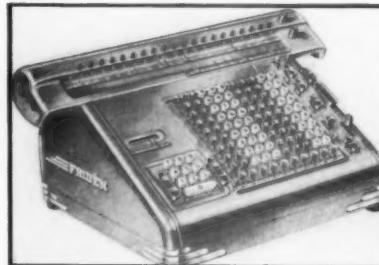


Dry Ice Proves Highly Efficient as Fire Fighter.

One new use for carbon dioxide is found in a truck which carries hundreds of pounds of this gas in steel cylinders and can shoot a blanket of gas and "snow" into a blazing airplane, quickly choking the most stubborn gasoline fire. Clouds of the gas—not to be confused with the poisonous carbon monoxide—are also used to choke electrical fire in power station generators and transformers, where the use of a conducting medium such as water may ground a live electrical line through the body of a fire-fighter, with fatal results.

Carbon dioxide extinguishers, whether built-in or portable, consist of cylinders holding liquid and gaseous carbon dioxide under high pressure. When discharged through pipes or hoses at a fire, the gas dilutes the normal oxygen content of the air to a point where combustion cannot be supported and the fire dies. Flammable liquids and electrical fires are particularly susceptible to this type of smothering.

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■ A modern instrument for modern requirements is the supermatic adding calculator manufactured by the Friden Calculating Machine Co., Inc., of San Leandro, California.

It is fully automatic without pre-setting in multiplication, division, negative multiplication, accumulative multiplication, addition and subtraction. The multiplier is fully visible. Each multiplier appears as a visible proof of accuracy before a multiplication is made. Answers are written during multiplying time.

Multiplicands, dividends and divisors at completion of each calculation are automatically cleared from keyboard. A positive keyboard lock locks the entire keyboard against accidental release of any keys. Quotients are written while division is being performed. Dial twirlers for direct entering of dividends or other values in the upper dials, without disturbing the keyboard. Full automatic division with automatic keyboard clearance.

Test this machine on your own work with your own operator and watch it produce results 30 to 50 per cent faster.

# Are your Machines Neighborly?

• MAYBE some of your machines upset others unless they are kept a long way apart. They will work together better and much space will be saved when you put them on Unisorb vibration pads.



*Send for your copy of "Unisorb In The Industrial Plant", which tells in more detail of the many ways in which Unisorb may be used.*



Unisorb felts absorb shock and vibration. They protect your equipment and buildings.

Installations are extremely simple. In 999 cases out of 1000 a set of pads for your machines can be recommended that will require no change in the machine base or special adapters to install.

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Pillow Block Mounting



Flanged Mounting



Duplex Unit



Drop Hanger Unit



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- These bearings realign themselves instantly within a total range of 3 degrees, yet housings are one-piece, strong and compact, because auxiliary alignment facilities are not needed. Available in a full range of types and sizes.

We also carry a complete line of babbited and bronze-bushed bearing units.

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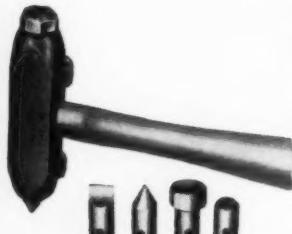
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Steel Strapping*  
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or shot whatsoever to obtain quiet operation.

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1 1 1

**Purchasing—The Newest Profession**

(Continued from page 69)

and they found it possible to trade their surplus for materials to fill out their requirements. High speed transportation, engineering, chemical and metallurgical development created a demand for commodities which had to be gathered from all over the world. No nation is now self sufficient. Politics, wars and even weather in far countries affect procurement of materials for United States industry. Federal and State laws on contracts, labor, taxes and many other subjects have added to the complications.

As all of the other functions of business and management have improved in status and personnel so has purchasing. Today's Purchasing Agent is no longer an order clerk. The complications of procurement require special training and constant study of commodities, markets and laws. Management is becoming more and more conscious of the fact that almost sixty cents out of each manufacturing dollar is spent for materials and supplies, and obtaining maximum value for each dollar of expenditure is a major function. The type of men employed is constantly improving with the status of the job.

Purchasing is definitely growing up and unfortunately many men now at the head of purchasing departments are not growing with it. A comparison of educational background of representative Purchasing Agents in industry today shows a surprising number trained in science, business administration and law, who have worked in the operating departments long enough to become familiar with manufacturing methods and the use of the materials they purchase. These men are convinced that Purchasing is a career worthy of anyone and are following the Standards of Purchasing Practice of N.A.P.A.

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"Justice to those with whom he deals."

"Faith in his Profession."

# BLADES, BLADES, BLADES, but just ONE

There is just one MARVEL High-Speed-Edge Hack Saw Blade. It is the 100% efficiency blade that costs no more than ordinary high speed blades yet is unbreakable and will out-last and out-cut all others. Why? Because of the patented construction; a stiff tough back welded to a perfect cutting edge (for greater speeds and feeds). Use MARVEL blades to cut straighter (they'll take all the tension required for the job), to cut faster and to last longer. They simply mean more work per dollar, more work done for the dollars YOU spend for blades.

## ARMSTRONG-BLUM MFG. CO.

"The Hack Saw People"

5760 BLOOMINGDALE AVE., CHICAGO., U. S. A.

Eastern Sales: 199 Lafayette St., N. Y.

### 1.

The Tough Alloy Steel Back of the MARVEL High Speed Edge blade is:

### 2.

Electrically-welded and becomes integral with:

### 3.

A cutting edge of 18% Tungsten High Speed Steel which make MARVEL High-Speed-Edge Blades

### 4.

UNBREAKABLE,  
IN FACT!

## LINK-BELT SAFETY COLLARS



**They're  
Chamfered!**

• These collars have bores chamfered for ease of installation and are machine-finished all over and cadmium plated—corners are smooth and flangeless—outer edges are rounded for safety—set screw tightens below the surface.

They are especially well suited where limited space is available on and around shaft, or where corrosion resistance and appearance are important. Carried in stock, and neatly packaged for shipment. Data is shown in Book No. 1600 and General Catalog No. 800.

### LINK-BELT COMPANY

Indianapolis, Chicago, Philadelphia, Atlanta, San Francisco, Toronto.  
Offices and distributors in principal cities.

7944-A

## WARNING— HOT WEATHER AHEAD!

*Be prepared with these Safety Aids!*

### SALT TABLETS and DISPENSERS

Prevent heat sickness, cramps and physical weakness due to salt depletion in perspiring workers. Provide inexpensive Salt Tablets in handy Dispensers at drinking places thruout your plant. Pulmosan has large stocks of leading brands ready for prompt shipment.

### SWEAT PADS

Worn across forehead to absorb perspiration and prevent its running into eyes, dripping onto work or fogging goggles. Several types. Very economical.

### ANTI-MIST FOR GOGGLES

Simply rub on lenses, polish with cloth and lenses will not "sweat" or fog for hours. An inexpensive time-saver and work aid.

*Write for full details and prices.*

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Brooklyn, N. Y.

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